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KCEA Review and Forecast

by Charles W. Hultman*

While many forecasting groups continue to predict mild economic recovery to begin in 1982, there is yet no solid body of evidence to suggest that recovery has begun. The various indicators of economic activity continue to present a mixed picture. Industrial production declined during April, May, June and July, but real Gross National Product (GNP) rose 2.1 percent during the second quarter of 1982 following sharp declines during the preceding two quarters. The Composite Index of Leading Indicators, which generally leads the lower turning point by from one to six months, increased for the fifth straight month in July, but then declined in August. Such movements contribute to uncertainty regarding the future of the economy. Declining interest rates suggest softening of monetary controls.

Recent favorable developments do not mean that prosperity is at hand but instead suggest that, if the national forecasters and indicators of change are accurate, an expansion in economic activity is likely to occur. Employment, however, is not expected to recover at any early date, and the unemployment rate may decline little, if at all, for the remainder of 1982. The Wharton Quarterly Model forecast (dated August 28, 1982) projects real GNP to rise about 4.5 percent during the fourth quarter of 1982 and about 3.9 percent during all of 1983. The unemployment rate would exceed 9 percent for the fourth quarter of 1982 and decline to slightly below 9 percent for 1983.

Historically, the Kentucky economy has not been affected as seriously by recession as has the nation; the state's labor unemployment rate has generally been somewhat below that of the nation. This situation was reversed in 1981 and 1982, however. During many months, the state's unemployment rate was among the highest in the nation, having been at or near 10 percent (unadjusted) during each of the past few months. The recently revised rate for July is 11.3 percent.

The severity of the recession is also reflected in the level of transfer payments (Social Security, unemployment insurance, food stamps, etc.), which rose to $5.064 billion in 1981. As a portion of Kentucky's personal income, transfer payments rose from 14.6 percent in 1979 to 16.3 percent in 1980 and 16.4 percent in 1981. While it is true that increases in the income support types of transfer payments soften the income decline associated with a recession, a rise in transfer payments nevertheless indicates that income support is necessary. Kentucky is above the national average in transfer payments as a source of total personal income and also is at or above the national rate of increase in transfer payments.

The 1981-82 recession appears substantially related to high interest rates and reduced residential construction and automobile production. But the decline in residential construction (as reflected, for example, in an index of permit-authorized residential construction) was earlier and greater in Kentucky than in the nation. Kentucky's manufacturing sector is adversely affected because Kentucky firms produce consumer and producer durables used either in new residential structures or in their construction. Also, a substantial volume of manufacturing employment is linked to the production of automobile parts, and so a similar employment decline has occurred in firms which support the automobile industry. As a whole, Kentucky's durable manufacturing employment in the second quarter of 1982 was 12 percent below the second quarter of 1981 and 21.6 percent below the high in durable manufacturing employment reached during the second quarter of 1979.

According to the U.S. Department of Agriculture, key farm sector indicators suggest that 1982 will be the third consecutive year of low farm income. Interest costs on previous borrowings are especially burdensome during periods of falling crop prices, and, relative to Kentucky, crop prices in 1982 are generally below those for the same months in 1981 for wheat, soybeans, and corn. Kentucky coal production, employment, and average weekly hours were generally higher in 1982 than in 1981 (first seven months), although of course there was a 72-day coal strike in the spring of 1981.

Wharton Econometric Associates project the inflation rate to be maintained at about 6 percent through the end of 1983, and in recent months the rate has been well below that level. A decline in the short and medium term interest rates and stability of petroleum prices may induce increased activity in the automobile and related sectors, but activity in residential construction is more difficult to predict. Although mortgage and other long-term interest rates are not likely to decline substantially for some time, a large backlog of needs may stimulate activity in this area.

Charles W. Hultman is the Chairman of the KCEA.

The Bureau of Economic Analysis (BEA), U.S. Department of Commerce, has recently released estimates of disaggregated Kentucky personal income for 1981. This release includes approximately 275 data series; they will soon be updated in the annual databank (ABANK) of the Kentucky Economic Information System (KEIS). At the same time BEA revised all state-level personal income estimates for 1929-68 and for 1974-80. Revisions for the years 1951-68 and 1974-80 will be incorporated into the ABANK as soon as the machine-readable version of these data is received by the KCEA staff.

The database of the KEIS has again been expanded. The ABANK now includes series on the number of Kentucky establishments, by industry, for 1951-80, from the Bureau of the Census' (U.S. Department of Commerce), *County Business Patterns*. Other new ABANK series include the number of manufacturing plants, by industry, whose employees are covered by the unemployment insurance program, 1973-81. These data are released by the Unemployment Insurance Branch of the Kentucky Cabinet for Human Resources.

The monthly databank (MBANK) has been expanded to include all publicly available and useful monthly data related to the unemployment insurance program, including the number of workers covered by unemployment insurance, by industry; data on insured unemployment; insured unemployment rate; average weekly claimants and initial claims; and percentage of insured unemployed by age, race, sex, as well as in mining, manufacturing, and construction. Other newly available monthly series include construction-related estimates; the value of loans issued by Kentucky savings and loan associations; the sales of ordinary life insurance in Kentucky; and prices received by Kentucky farmers, by crop, for selected commodities.

KEIS/Frankfort training sessions have been held recently for two groups of state government information specialists. The first was for staff at the Kentucky Department for Libraries and Archives, whose use of the KEIS will be for general reference service, for specific assistance to agencies whose personnel do not have the capability for direct access to the KEIS/Frankfort, and for in-house research and planning efforts. Staff of the Information Centers, established earlier this year in each of four state office buildings, participated in the second training session. The Information Centers are operated by the Kentucky Department of Information Systems to provide support services for agencies in each of the buildings, including assistance in the use of the KEIS.

For KEIS information, or to schedule a training session, please call the KEIS Manager (606-258-4626).

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On July 20, 1982, Professor Don M. Soule, Acting Executive Director of the KCEA, was a guest on the KET program, *Kentucky Journal* and discussed the implications of a flat-rate federal income tax. More recently he appeared as both a commentator and participant on panels at the annual Kentucky Economic Association meeting held in Lexington, September 24, 1982.

Frances E. Ross, KCEA data analyst whose responsibilities include maintenance of the energy sector of the KEIS, attended the Kentucky Coal Conference held in Lexington, August 16-17, 1982, and demonstrated the utility of the KEIS via a terminal loaned by the Kentucky Department of Information Systems.

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Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Changes in Metropolitan and Nonmetropolitan Kentucky, 1970-80

by Don M. Soule and Frances E. Ross*

Metropolitan areas differ from nonmetropolitan areas not only in degrees of urbanization but also in types of employment, levels and sources of income, and rates of growth in population, employment, and income. These relationships change over the years. Counties can be combined relative to metropolitan areas according to the following groups: central counties of SMSAs (Standard Metropolitan Statistical Areas); other counties in SMSAs; contiguous nonmetropolitan counties; and noncontiguous, nonmetropolitan counties.[1] In Kentucky the central counties of several SMSAs are located in neighboring states; there is also some overlapping in the definition of the other three types of county groupings. Probably the most appropriate way to group Kentucky counties is: all counties, all metropolitan counties, and all nonmetropolitan counties.

Table 1 identifies the current Kentucky SMSAs and their component counties. The Lexington SMSA is the only one of the seven Kentucky SMSAs that does not border another state.

TABLE 1

STANDARD METROPOLITAN STATISTICAL AREAS OF KENTUCKY (As Defined in 1980)

Cincinnati SMSA
- Boone County, Ky.
- Campbell County, Ky.
- Clermont County, Ohio
- Dearborn County, Ind.
- Hamilton County, Ohio
- Kenton County, Ky.
- Warren County, Ohio

Huntington-Ashland SMSA
- Boyd County, Ky.
- Cabell County, W. Va.
- Greenup County, Ky.
- Lawrence County, Ohio
- Wayne County, W. Va.

Louisville SMSA
- Bullitt County, Ky.
- Clark County, Ind.
- Floyd County, Ind.
- Jefferson County, Ky.
- Oldham County, Ky.

Clarksville SMSA
- Christian County, Ky.
- Montgomery County, Tenn.

Evansville SMSA
- Gibson County, Ind.
- Henderson County, Ky.
- Posey County, Ind.
- Vanderburgh County, Ind.
- Warrick County, Ind.

Lexington SMSA
- Bourbon County, Ky.
- Clark County, Ky.
- Fayette County, Ky.
- Jessamine County, Ky.
- Scott County, Ky.
- Woodford County, Ky.

Owensboro SMSA
- Daviess County, Ky.

The Louisville SMSA is mainly within Kentucky, while three of Kentucky's other SMSAs are the smaller parts of metropolitan areas mainly in border states–Cincinnati (Ohio) SMSA; Evansville (Indiana) SMSA; and Huntington (West Virginia) SMSA. Owensboro is defined as a separate SMSA, although it nearly qualifies as part of the Evansville SMSA. Approximately half of the area of the Clarksville (Tennessee)-Hopkinsville SMSA is in Kentucky.

This brief study identifies differences and changes among Kentucky counties as they relate to population and income. For purposes of this study, the counties have been grouped according to the 1980 definitions of the Kentucky SMSAs. The following groups are compared: each of the seven SMSAs that include Kentucky counties, with a separate total for each Kentucky portion; the total of Kentucky's 120 counties; the total of Kentucky's 17 metropolitan counties; and the total of Kentucky's 103 nonmetropolitan counties. Population and income are compared for the years 1970, 1975, and 1980, using data drawn from the database of the Kentucky Economic Information System (KEIS).[2] A later study will examine employment characteristics. Two types of calculations are employed: parts are shown as percents of totals and period growth is shown as a percentage change.

Table 2 compares population size for 1970, 1975, and 1980. Approximately 44 percent of Kentucky's population in 1980 was in the 17 metropolitan counties, with 56 percent in the 103 nonmetropolitan counties. The state's total population grew 13.6 percent over the decade, but that growth was much greater in the nonmetropolitan counties (18.7%) than in the metropolitan counties (7.8%).

Population growth also was unequal between the two halves of the decade, being less in the second half. For the state total, this difference was modest. But the metropolitan counties grew only about one-half as fast in the second part of the decade as in the first, while the nonmetropolitan counties had only a slightly smaller growth rate in the second half of the decade. Insofar as population growth suggests a favorable economic climate, Kentucky's nonmetropolitan counties performed much better than its metropolitan counties in both halves of the 1970-80 decade.

Population growth among the seven SMSAs was also uneven for the Kentucky and non-Kentucky parts, and for the two halves of the decade. The two largest SMSAs had the lowest rates of population growth. Within those areas, faster growth occurred in the Kentucky part of the Cincinnati SMSA and in the Indiana part of the Louisville SMSA. In the second half of the decade, growth was especially slow for the Cincinnati and Louisville SMSAs. The Kentucky part of the Louisville SMSA actually showed a negative change in population but growth was higher in the second half of the decade for the Kentucky part of the Cincinnati SMSA. High rates of population growth occurred in the Lexington and Clarksville SMSAs for the decade, but both had slower growth rates in the second half of the decade, especially in the Christian County portion of the Clarksville SMSA. The Kentucky parts of the Evansville and Huntington SMSAs each grew faster than the total SMSA, and the Kentucky parts grew faster in the second half than the first half of the decade. Overall, the greatest percentage gains occurred in the smaller parts of the larger metropolitan areas and in the smaller metropolitan areas.

*Don M. Soule is Acting Executive Director and Frances E. Ross is Data Analyst, Kentucky Council of Economic Advisors.

TABLE 2

POPULATION SIZE, 1970, 1975, 1980
(In Thousands)

	Population			Percent Change		
	1970	1975	1980	1970-80	1970-75	1975-80
County Totals:						
All Kentucky	3,230.6	3,468.8	3,670.0	13.6%	7.4%	5.8%
Metropolitan	1,513.9	1,589.1	1,632.6	7.8	5.0	2.7
Nonmetropolitan	1,716.7	1,879.7	2,037.4	18.7	9.5	8.4
SMSAs:						
Cincinnati	1,387.2	1,378.4	1,404.7	1.3	-.6	1.9
(Ky. Counties)	251.1	256.1	266.8	6.2	2.0	4.2
Clarksville	119.7	139.1	150.4	25.8	16.2	8.3
(Ky. Counties)	56.7	66.3	67.0	18.2	16.9	1.1
Evansville	285.4	292.7	310.1	8.6	2.6	5.9
(Ky. Counties)	36.0	37.3	40.9	13.6	3.6	9.7
Huntington	287.7	294.2	312.1	8.5	2.3	6.2
(Ky. Counties)	85.7	88.2	94.8	10.6	2.9	7.5
Lexington	267.5	297.7	318.9	19.2	11.3	7.1
Louisville	869.2	901.3	908.4	4.5	3.7	.8
(Ky. Counties)	737.4	761.0	758.0	2.8	3.2	-.4
Owensboro	79.5	82.5	86.2	8.4	3.8	4.5

Table 3 compares per capita personal income by residence, for the years 1970, 1975, and 1980. Income levels were much higher in the 17 metropolitan counties than in the 103 nonmetropolitan Kentucky counties, in all three years (39% higher in 1980). In rates of income growth, the nonmetropolitan counties exceeded the metropolitan counties over the decade and in the first half of the decade. The pattern was reversed, however, in the second half of the decade, with the nonmetropolitan counties showing reduced per capita personal income growth. Overall, the income growth trends parallel the population trends discussed earlier. However, the decline in per capita personal income growth in nonmetropolitan Kentucky during the latter part of the decade contrasts with the population growth.

Among the seven metropolitan areas, per capita personal income levels in the Kentucky parts of the Cincinnati and Evansville SMSAs were lower than the average for each SMSA as a whole. Within the Huntington SMSA though, the income levels were higher in the Kentucky counties. Bright spots for Kentucky per capita personal income growth over the decade were in the Lexington and Owensboro SMSAs and the Kentucky parts of the Huntington and Evansville SMSAs. Income

TABLE 3

PER CAPITA PERSONAL INCOME, 1970, 1975, AND 1980*

	Dollars			Percent Change		
	1970	1975	1980	1970-80	1970-75	1975-80
County Totals:						
All Kentucky	$3,096	$4,788	$7,662	147.5%	54.6%	60.0%
Metropolitan	3,736	5,548	9,085	143.2	48.5	63.7
Nonmetropolitan	2,532	4,146	6,521	157.5	63.7	57.3
SMSAs:						
Cincinnati	4,105	5,958	9,877	140.6	45.1	65.8
(Ky. Counties)	3,639	5,367	8,777	141.2	47.5	63.5
Clarksville	2,987	4,712	6,903	131.1	57.7	46.5
(Ky. Counties)	2,930	4,622	6,829	133.1	57.7	47.7
Evansville	3,586	5,685	9,355	160.9	58.5	64.5
(Ky. Counties)	3,240	5,409	8,857	173.4	66.9	63.7
Huntington	3,236	4,959	8,112	150.7	53.2	63.6
(Ky. Counties)	3,219	5,053	8,582	166.6	57.0	69.8
Lexington	3,579	5,304	9,161	156.0	48.2	72.7
Louisville	3,954	5,768	9,275	134.6	45.9	60.8
(Ky. Counties)	4,007	5,873	9,468	136.3	46.6	61.2
Owensboro	3,410	5,321	8,807	158.3	56.0	65.5

*By place of residence.

(continued on page 16)

Indigent Medical Care in Kentucky

by C. Johnston Conover*

The problem of medical care for the indigent has plagued policymakers in Kentucky for decades. A significant fraction of the population cannot afford basic medical care either because of low household income or because catastrophic health costs outstrip their families' available insurance or cash resources. Broadly speaking, indigent medical care, as used in the following article, refers to subsidized care for those who cannot afford to pay for all or part of the costs of the medical services they receive.

In the late 1950s, then-Governor "Happy" Chandler commissioned a study of medical care of the indigent in Kentucky. The report that followed estimated that one out of every eight Kentuckians was medically needy.[1] Shortly thereafter, a program of public medical assistance to the poor was established. This program, while substantial, was inadequate relative to the problem of indigent care in Kentucky. It has since been superseded by Medicaid, a state program supplemented by federal dollars. The following article explores the magnitude and nature of the problem of indigent medical care in Kentucky today, and briefly examines some possible policy solutions to ameliorate it.

*C. Johnston Conover is Director of the Center for Health Policy Development, Kentucky Cabinet for Human Resources.

There are two distinct categories of individuals who generate indigent medical care costs. The first consists of persons who cannot afford basic medical care. The second consists of persons who either have insurance coverage for basic medical care, including Medicare,[2] or who can personally afford to pay for all their basic medical care, but who have inadequate coverage for very high medical bills. Individuals in either of these categories may be eligible for government subsidized medical care, i.e., Medicaid.

Medicaid pays the full cost of a broad range of medical services for low-income elderly or disabled persons, and low-income families with dependent children. However, only about 25 percent of those below the poverty level qualify for Medicaid.[3] The approximately 75 percent of the population below the poverty level not eligible for Medicaid sometimes obtain free care from physicians or clinics, or are charged for medical services on a sliding scale basis. More often, however, such persons under-use primary care by physicians and become charity cases or bad debt cases for hospitals or other health care providers. Through a "spend-down" provision, Medicaid may also be available to certain other Kentuckians with high medical bills.[4] Nonetheless, neither Medicaid nor Medicare adequately addresses the problem of indigent medical care.

TABLE 1

ESTIMATE OF POTENTIAL MEDICALLY INDIGENT KENTUCKIANS, 1982

Category of Health Care Insurance Coverage	All Kentuckians (Population Estimate 3,740,00) Number	Percent	Kentuckians With Family Incomes Under 125 Percent of Poverty Level (Population Estimate 1,203,000) Number	Percent
1. Inadequate Basic Coverage				
a. Chronically Uninsured	404,000	10.8%	269,000	22.3%
b. Sometimes Uninsured	314,000	8.4	220,000	18.3
c. Inadequate Hospitalization	273,000	7.3	81,000	6.7
2. Inadequate Catastrophic Coverage				
a. No Catastrophic Insurance	1,116,000	29.8	262,000	21.8
b. Bills Exceed Catastrophic Limits	Unknown	Unknown	Unknown	Unknown
c. Medicaid Benefit Exhaustees	5,900	0.2	5,000	0.4
3. Current Recipients of Public Subsidized Care				
a. Medicaid Eligibles	338,400	9.0	287,640	23.9
b. Medicare Eligibles	465,000	12.4	158,341	13.2

Note: There is some duplication among categories, i.e., most people with inadequate hospitalization insurance also lack catastrophic coverage.

SOURCE: Total population estimate by the author on the basis of the 1980-85 projected population. See, James M. Brockway and Clarence J. Wurdock, *How Many Kentuckians: Population Forecasts, 1980-2020. The 1981 Preliminary Update* (Louisville, Kentucky: Population Research Unit, Urban Studies Center, University of Louisville, December 1981), p. 5. The estimate of Kentuckians with incomes 125 percent below the poverty level made by the author from 1970 Kentucky census data, updated by using the national poverty trends from Bureau of the Census, *Money Income and Poverty Status of Families and Persons in the United States: 1980* (Advance Report, October 1981), and the Kentucky population projections. Other estimates compiled by the author based on information in the National Medical Care Expenditure Survey (1977), Survey of Income and Education (1976), Congressional Budget Office, *Catastrophic Health Insurance* (1977), and *Profile of Health Care Coverage* (1979).

The problem is intimately linked to a lack of adequate health insurance coverage by many persons. Among those who lack *basic* medical insurance, there are three distinct groups: (1) the chronically uninsured who tend to lack insurance coverage for extended periods. Most of these are dependents of low-income employees who have employer-paid group coverage for themselves but who lack the resources to pay for family coverage (migrants and the chronically unemployed also are included); (2) the "sometimes insured" who, due to recurrent changes in employment, float in and out of coverage under group plans. They may have adequate insurance for part of the year, but go unprotected for the remainder; and (3) those who have inadequate insurance coverage for hospitalization. This group is defined as anyone whose insurance would not cover at least 80 percent of a hospital bill.

Those who lack adequate *catastrophic* coverage also fall into three groups: (1) those who have no catastrophic coverage whatsoever. In Kentucky, this includes roughly 42 percent of the population that has private health insurance and roughly 25 percent of those under Medicare who have opted not to purchase supplemental catastrophic benefits; (2) the class of individuals who have catastrophic coverage, but whose medical care is so expensive that they exhaust the limits of their major medical policy; and (3) a small group of individuals who exhaust their Medicaid coverage. For Medicaid eligibles, the benefits are generally unlimited, but in an effort to control costs, Kentucky recently imposed a ceiling of fourteen days per hospital stay (for acute care) after which the individual or hospital must absorb any additional costs. Thus, though Medicaid usually pays virtually all medical bills, it still leaves eligibles at risk for certain catastrophic costs. Table 1 summarizes the estimated number of individuals in each of the categories just described, for the total population and for that part of the population estimated to be below 125 percent of the poverty level.[5]

Lack of insurance in and of itself does not constitute medical indigency. For example, there are some with more than adequate financial resources who deliberately choose to self-insure and are unlikely to create bad debts in the health care system, as long as their medical expenses are "normal." However, with very few exceptions, catastrophic costs of $50,000 or $100,000 quickly become too steep to bear. Health care providers probably end up writing off a portion of these high costs as uncollectable, with the remainder borne by individual charity or by the public sector.

As shown in Table 1, over one million Kentuckians lack catastrophic health coverage and risk becoming medically indigent. In addition, there are all those at or near the poverty-level whose circumstances are considerably different. For them, even a single night's hospital stay can become a catastrophe; the absence of basic health insurance makes it likely that they will have to rely on subsidized care. Approximately

TABLE 2

DISTRIBUTION OF MEDICAL CARE COSTS IN KENTUCKY, 1980
(Expenditures in Millions of Dollars)

Category	Total Expenditures	Total Expenditures for Indigent Medical Care[7]	Indigent Medical Care Costs as Percent of Total Medical Care Expenditures	Government Share of Total Indigent Medical Care Costs
Hospitals[1]	$ 942.2	$316.8	34%	52%
Mental Health Institutions[2]	77.2	47.6	62	100[6]
Nursing Homes[3]	188.7	147.6	78	90
Physicians and Dentists[4]	744.6	160.2	21	39
Other[5]	1,010.4	46.8	4	100[6]
Total	$2,963.1	$719.0	24%	63%

[1] Data obtained from Kentucky Hospital Association, *A Study of Uncompensated Care in Kentucky, 1979 and 1980* (Louisville, KHA, Hospital Data Clearinghouse, September 1981).

[2] Includes state and VA mental hospitals and intermediate care facilities for mentally retarded. Unpublished data obtained from Kentucky Department for Human Resources (DHR).

[3] Unpublished data on expenditures obtained from DHR. Assume 8 percent of patients have no financial support from public or private sources. See Bureau of the Census, *1976 Survey of Institutionalized Persons* (1978).

[4] Data on expenditures estimated by author using Robert Gibson and Daniel Waldo, "National Health Expenditures, 1980," *Health Care Financing Review*, September 1981, pp. 1-54. Unpublished data on charity cases and bad debts are estimated from Medical Economic Survey data which show a median bad debt rate of roughly 8 percent (assumes 5 percent charity).

[5] Includes other health professionals (such as private-duty nurses, non-hospital based home health agencies, chiropractors, optometrists, etc.), drugs and appliances, administrative costs for health insurance and government programs such as Medicare and Medicaid, medical research expenditures, public health activities, and new construction of hospitals, nursing homes, clinics and health research facilities.

[6] The amount of indigent care costs borne privately is unknown for all categories. For purposes of this table, the government share of indigent care in mental health institutions and in the "other" category is assumed to be 100 percent.

[7] Includes all bad debts, charity, contractual allowances, Medicaid, and state funding for each category. Also includes estimated Medicare expenditures for those below poverty level. Medicaid information was obtained from Department for Human Resources, *PA-264 Report, FY80* and Medicare information derived from Donald M. Muse and Darwin Sawyer, *The Medicare and Medicaid Data Book, 1981*, Baltimore: Health Care Financing Administration.

600 thousand Kentuckians are estimated as being in these circumstances. Because of an overlapping of the categories shown, a more precise count is not possible. In addition, there are 288 thousand persons on Medicaid, plus some 158 thousand Medicare recipients at or near the poverty level. In the absence of government intervention to pay their bills, these 446 thousand Kentuckians would become charity patients or bad debt burdens on the health system, or would go without needed medical care. In total, the data of Table 1 suggest that there are approximately two million Kentuckians whose potential medical care may have to be borne by the public, through higher charges for medical services or through direct public subsidies.[6]

Given the magnitude of the number of persons who are at risk of needing their health costs subsidized, some description of these costs should be informative. In 1980, Kentuckians spent an estimated $3.0 billion on health care. The distribution of these expenses, by type of health service provided, is illustrated in Table 2. Over $700 million of total health expenditures were subsidized; over $450 million was paid by government funds, and $265 million is estimated as having been paid by health-care providers themselves, charity organizations, and other sources.

charges) in order to cover the medical costs of those who cannot pay all of their bill? This raises an interesting equity question that is illustrated by Table 4. It shows that low-income families incur a disproportionate share of health costs under the current system. Those with family incomes under $5,000 represented, in 1975, less than 20 percent of all Kentuckians, but incurred nearly 30 percent of all health care costs. Yet, because of public subsidies and the absorption of costs by private payers, the distribution of actual *payments* made by families for their own care corresponds remarkably closely to the distribution of persons within each income category.[7]

In other words, the aggregate payment of health care costs by each income group, as a percent of all payments for health care costs, is approximately equivalent to the percent of the total population that falls into each income category. Assuming that each income group's share of the burden of private indigent care subsidies is similar, it could be argued that the shifting of indigent care costs among income groups currently results in a system that is "fair" because no income group is disproportionately burdened with indigent care costs. On the other hand, if one compares the distribution of *income*, an opposite conclusion emerges: those below $5,000 had only

TABLE 3

CATASTROPHIC EXPENSES AND INDIGENT CARE

Category	Total Catastrophic Costs, 1980 (In Millions of Dollars)		Percent of Catastrophic Costs Which Become Indigent Care Costs	Percent of Indigent Care Costs Created by Catastrophic Expenses
	All Kentuckians	Indigent Persons		
Hospitals	$372.2	$100.5	27%	32%
Mental Health Institutions	19.2	10.6	55	22
Nursing Homes	129.9	100.3	77	68
Physicians and Dentists	84.7	23.0	27	13
Other	22.1	5.9	27	10
Total	$628.1	$240.3	38%	31%

Note: A "catastrophic health expense" entails any expenditure of more than $5,000 in one year for one person.

SOURCE: Based on data and assumptions in Howard Birnbaum, *The Cost of Catastrophic Illness*, Lexington, Mass.: Lexington Books, 1978, extrapolated by author to Kentucky.

Expenditures by Kentuckians for catastrophic medical expenses are shown in Table 3. Note that 31 percent of indigent care costs relate to catastrophic medical expenses. This means that 69 percent of indigent medical care costs simply represent charges for basic medical care.

What, then, are the policy options for dealing with indigent medical care costs? Kentucky has come a long way in the past two decades. When the Kentucky Medical Care Program was first established in 1961, only about 5 percent of the population was eligible for medical subsidies, even though over 12 percent could not afford basic care. Today, state and federal outlays cover almost two-thirds of all indigent care costs. But what about the remaining one-third of these costs?

Is it fair to impose, in essence, a tax on the health providers (who may pass this along to patients in the form of higher

7.4 percent of income, but paid 17.5 percent of private health care costs—so one could argue that the current system is *not* very fair.

The current system *does* have the feature of easing some of the burden for low-income families. However, the "tax" imposed by indigent care could be made considerably more progressive if state income tax dollars were used to replace the remaining one-third of private subsidies for indigent health care. In that case, those with incomes under $5,000 would pay less than 2 percent of total health care costs even though they comprise almost 20 percent of the population and receive only a little over 7 percent of income.

(continued on page 15)

selected indicators OF ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Apr. 1982	May 1982	June 1982	Qtr. II 1982	% Chg. 82-I 82-II	% Chg. 81-II 82-II
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	284.30	287.10	290.60	[illegible]	1.53	6.80
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	276.50	278.10	280.20	[illegible]	1.19	4.66
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	309.40	313.80	317.50	[illegible]	2.24	8.69
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	191.90	191.50	190.80	[illegible]	1.38	2.79
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	282.90	285.60	292.80	[illegible]	-0.20	3.40
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	321.70	323.80	326.40	[illegible]	2.48	12.03
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	233.90	234.40	235.60	[illegible]	1.54	6.60
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	253.80	255.00	255.80	[illegible]	1.82	9.94
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	395.70	402.10	418.60	[illegible]	-1.55	-1.51
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FINISHED GOODS	277.30	277.70	279.90	[illegible]	0.22	3.25
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	277.30	277.60	280.00	[illegible]	0.04	2.52
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	309.90	309.80	310.00	[illegible]	-0.32	1.09
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	290.60	291.50	290.00	[illegible]	0.05	2.00
PRODUCER PRICE INDEX, CRUDE MATERIALS	322.60	328.10	325.70	[illegible]	1.71	-2.95
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	254.40	262.30	259.80	[illegible]	5.10	-1.51
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,SPOT(1967=100)	440.90	429.90	428.50	[illegible]	-2.07	6.50
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,CONTRACT(JUNE76=100)	149.30	150.50	150.60	[illegible]	1.44	8.50
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	22.92	23.85	23.36	[illegible]	8.04	22.99
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	51.85	55.43	54.80	[illegible]	10.94	23.23
AVG PRICE FOR ELECTRICITY, PER 500 KWH	36.80	36.44	38.05	[illegible]	2.25	10.28
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.16	1.17	1.19	[illegible]	-4.93	-7.33
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.21	1.22	1.30	[illegible]	-5.02	-9.31
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.15	1.17	1.24	[illegible]	-5.20	-11.12
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.22	1.24	1.31	[illegible]	-5.16	-10.28
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.37	1.38	1.41	[illegible]	-3.39	-4.35
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (MILLIONS)	109.65	110.67	110.19	[illegible]	0.95	1.23
EMPLOYMENT, TOTAL (MILLIONS)	99.34	100.12	99.76	[illegible]	0.19	-1.04
EMPLOYMENT, AGRICULTURE	3.31	3.49	3.36	[illegible]	0.21	-0.67
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	96.03	96.63	96.41	[illegible]	0.19	-1.05
UNEMPLOYMENT RATE, TOTAL	9.40	9.50	9.50	[illegible]	7.98	27.93
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	16.90	17.20	17.10	[illegible]	7.56	24.57
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG AT ANNUAL RATE)	NA	NA	NA	[illegible]	6.80	4.94
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	[illegible]	2.11	-1.58
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)	2535.50	2556.20	2566.30	[illegible]	6.90	7.23
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	126.60	127.70	128.30	[illegible]	1.76	-6.34
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	140.20	139.20	138.20	[illegible]	-1.81	-8.72
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	12.82	12.15	12.11	[illegible]	-4.14	-16.66
PRIVATE HOUSING UNITS AUTH, 16000 PERMIT-ISSUING PLACES (SADJ THOU)	879.00	944.00	929.00	[illegible]	60.24	-17.85
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	328.36	329.34	331.85	[illegible]	0.49	4.37

KENTUCKY DATA

	Apr. 1982	May 1982	June 1982	Qtr. II 1982	% Chg. 82-I 82-II	% Chg. 81-II 82-II
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1599.10	1621.60	1659.50	[illegible]	1.92	-2.80
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1433.70	1462.00	1481.40	[illegible]	2.87	-4.89
EMPLOYMENT, AGRICULTURAL	56.70	64.10	77.50	[illegible]	37.80	-2.56
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1377.00	1397.90	1403.90	[illegible]	1.65	-5.00
UNEMPLOYMENT RATE	10.30	9.80	10.70	[illegible]	-8.18	23.67
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1166.90	1169.80	1159.80	[illegible]	-0.26	-2.60
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	49.40	47.60	46.30	[illegible]	-1.24	34.05
EMPLOYMENT, CONTRACT CONSTRUCTION	45.60	45.60	45.70	[illegible]	7.71	-12.02
EMPLOYMENT, TOTAL MANUFACTURING	249.40	253.00	249.50	[illegible]	-3.54	-9.49
EMPLOYMENT, MANUFACTURING, DURABLE	137.20	140.40	135.40	[illegible]	-3.82	-12.24
EMPLOYMENT, MANUFACTURING, NON-DURABLE	112.20	112.60	114.10	[illegible]	-3.20	-5.89
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	65.20	65.30	66.10	[illegible]	-0.10	-1.75
EMPLOYMENT, WHOLESALE & RETAIL TRADE	249.00	250.10	251.40	[illegible]	-0.48	-2.82
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	51.40	51.70	51.60	[illegible]	0.32	-1.78
EMPLOYMENT, SERVICES (SIC 70-80)	217.50	216.90	216.60	[illegible]	1.26	0.15
EMPLOYMENT, CIVILIAN GOVERNMENT	233.80	233.80	226.60	[illegible]	0.45	-0.69
EMPLOYMENT, STATE & LOCAL GOVERNMENT	194.40	194.20	186.50	[illegible]	0.19	-1.30
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	37.70	38.10	39.00	[illegible]	1.15	-3.85
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	37.40	37.80	38.70	[illegible]	1.06	-5.79
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.00	38.40	39.20	[illegible]	1.05	-1.62
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	8.32	8.36	8.35	[illegible]	0.04	6.74
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	8.94	9.07	9.07	[illegible]	-0.26	7.04
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.58	7.49	7.53	[illegible]	0.80	7.98
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	313.66	318.52	325.65	[illegible]	1.18	2.63
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	334.36	342.85	351.01	[illegible]	0.81	0.85
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	288.04	287.62	295.18	[illegible]	1.86	6.13
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	9.74	9.18	9.06	[illegible]	-0.54	32.67
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.41	3.23	3.19	[illegible]	-6.93	82.38
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	12.83	12.68	13.70	[illegible]	0.23	10.58
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	605.58	599.76	649.38	[illegible]	-6.42	26.16
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	47.20	47.30	47.40	[illegible]	-6.83	14.62
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	21.85	18.16	19.24	[illegible]	*	47.98
CONSTRUCTION (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	125.50	111.30	142.60	[illegible]	27.19	-17.05
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	320.00	294.00	374.00	[illegible]	50.38	-26.76
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	13.18	12.21	15.10	[illegible]	41.54	-34.59
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	491.00	417.00	445.00	[illegible]	4.08	-43.60
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	17.09	15.05	16.62	[illegible]	13.65	-45.73
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	61.71	63.72	74.66	[illegible]	*	8.16
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	7.60	7.58	7.86	[illegible]	*	-0.07
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	5.94	9.90	7.21	[illegible]	-44.20	-81.02
SALES OF ORDINARY LIFE INSURANCE	501.66	475.18	530.34	[illegible]	3.59	15.16
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	208.65	149.56	195.41	[illegible]	*	16.49
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	57.63	57.82	58.45	[illegible]	*	8.37
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	80.88	47.73	27.48	[illegible]	*	-1.30
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	20.62	5.57	45.37	[illegible]	*	19.26
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	38.37	31.27	29.13	[illegible]	*	-16.83
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	15.88	17.04	15.19	[illegible]	*	8.43
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	10.04	9.35	10.42	[illegible]	*	16.68

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION, INC., SALES OF ORDINARY LIFE INSURANCE;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Renewed Growth in Kentucky Tax Revenues

by Lawrence K. Lynch*

Editor's Note: Lawrence K. Lynch has made independent revenue estimates for the Interim and Standing Committees on Appropriations and Revenue of the Kentucky General Assembly since 1975. The article which follows is based upon his testimony before the Interim Committee on Appropriations and Revenue on July 27, 1982. In this article, Lynch compares actual receipts for FY 1981-82 with his estimates that were presented in the September 1981 issue of Kentucky Economy: Review & Perspective; *in his July 27th testimony, Lynch compared receipts to a set of revised estimates he made in January 1982.*

The nationwide economic recovery widely predicted to begin in the second quarter of 1982 seems to be getting off to a slow start. While many of the key economic statistics turned upward in the spring of 1982, they sagged again in the summer. Thus it is uncertain whether recovery is underway; the strength and duration of whatever recovery does occur will be the subject of much debate among economists.

Nevertheless, Kentucky state government tax revenues grew as expected in fiscal year 1981-82, and are projected to grow strongly in the next biennium. The growth that is anticipated is due partly to nationwide economic recovery and partly to the positive impact on Kentucky revenues of the Economic Recovery Act of 1981.

Table 1 reports actual receipts for fiscal years 1980-81 and 1981-82, and compares 1981-82 receipts with both the author's (i.e., LRC's) and the Department of Revenue's July 1981 estimates.[1] It is clear from Table 1 that tax receipts grew moderately in 1981-82 and that the author's estimates for the General Fund were closer to actual receipts than the estimates of the Department of Revenue. General Fund 1981-82 receipts totaled $2,098.5 million, $2.1 million below LRC's estimates and $38.6 million above the Department of Revenue's estimates. Interestingly, the Department's estimates were closer on most major taxes but the author's LRC estimates benefited from compensating errors. The Department's July 1981 estimates tended to underestimate receipts from nearly all taxes.

However, the Department of Revenue's estimates for the State Road Fund were closer to actual receipts than the author's estimates. State Road Fund tax receipts were $378.0 million, $15.1 million above the LRC estimate and $9.0 million above the Department of Revenue estimate. The Department's estimates for motor fuels and other Transportation Fund taxes were closer than the LRC estimate; the LRC estimate was closer for the Motor Vehicle Usage tax.

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TABLE 1

KENTUCKY GENERAL FUND AND TRANSPORTATION FUND TAX RECEIPTS
COMPARISON OF ACTUAL AND ESTIMATED RECEIPTS
(Millions of Dollars)

	Actual Receipts			LRC Estimates		Department of Revenue Estimates	
Tax Source	FY 81	FY 82	Percent Change	FY 82	Percent Error	FY 82	Percent Error
Sales and Use	$ 630.2	$ 682.2	8.3%	$ 684.8	+0.4%	$ 680.0	-0.3%
Individual Income	573.1	600.8	4.8	636.8	+6.0	611.0	+1.7
Corporation Income	154.8	166.8	7.8	174.8	+4.8	160.0	-4.1
Coal Severance[1]	178.8	237.9	33.1	198.1	-16.7	208.8	-12.2
Less Transfer	(42.3)	(21.8)	–	(21.8)	–	(21.8)	–
Other General Fund	400.3	432.6	8.1	427.9	-1.1	421.9	-2.5
Total General Fund	$1,894.9	$2,098.5	10.7%	$2,100.6	+0.1%	$2,059.9	-1.8%
Motor Fuels[2]	$180.5	$202.1	12.0%	$189.5	-6.2%	$192.5	-4.8%
Motor Vehicle Usage[3]	91.3	103.0	12.8	103.1	+0.1	104.1	+1.1
Coal Severance Transfer[4]	42.3	21.8	–	21.8	–	21.8	–
Other Transportation Fund Taxes	46.2	51.1	10.6	48.5	-5.1	50.6	-1.0
Total Tax Receipts, State Road Fund	$360.3	$378.0	4.9%	$362.9	-4.0%	$369.0	-2.4%

[1] All Coal Severance tax revenues in excess of $177.6 million are shared equally by the state and local governments.
[2] This item includes Motor Fuels Use taxes.
[3] This item includes Motor Vehicle Rental Use taxes.
[4] This estimate is based upon existing bond issues only, and reflects a reduction for earned income.

SOURCE: Actual receipts are from published reports of Kentucky Department of Revenue. For other data, see text note 1.

TABLE 2

TAX RECEIPTS: ACTUAL, 1981-82 AND LRC ESTIMATES, 1982-83 AND 1983-84
(Millions of Dollars)

Tax Source	Actual Receipts 1981-82	July 1982 LRC Estimates 1982-83	Percent Change	1983-84	Percent Change
Sales and Use	$ 682.2	$ 730.6	7.1%	$ 801.3	9.7%
Individual Income	600.8	712.1	18.5	836.7	17.5
Corporation Income	166.8	189.2	13.4	213.6	12.9
Coal Severance	237.9	269.4	13.2	303.8	12.8
Less Transfer	(21.8)	(21.7)	–	(21.7)	–
Mineral and Gas Severance	8.8	9.6	9.1	10.5	9.4
Other General Fund	423.8	503.4	18.8	552.5	9.8
Total General Fund	$2,098.5	$2,392.6	14.0%	$2,696.7	12.7%
Motor Fuels	$202.1	$217.6	7.7%	$234.6	7.8%
Motor Vehicle Usage	103.0	116.3	12.9	130.8	12.5
Coal Severance Tax Transfer	21.8	21.7	–	21.7	–
Weight-Distance and Overweight Trucks	–	26.8	–	38.3	42.9
Other Transportation Fund Taxes	51.1	63.0	23.3	65.7	4.3
Total Tax Receipts, State Road Fund	$378.0	$445.4	17.8%	$491.1	10.3%

SOURCE: Estimates made by the author.

Economic forecasts for 1982-84 vary from a strong economic recovery all the way to a replication of the Great Depression. After a review of many of the forecasts available, the Wharton Econometric Associates' baseline forecast (May 25, 1982) was selected as the foundation for the author's revenue estimates. Wharton expects a moderate economic recovery beginning in the third quarter of calendar 1982 and continuing through the 1982-84 biennium. The specific assumptions for the July 1982 LRC revenue estimates are given below:

1. U.S. Personal Income growth of 8.9 percent in 1982 and 9.2 percent in 1983. When adjusted to Kentucky, these yield growth rates of 9.3 percent and 9.66 percent, for Kentucky Personal Income in 1982 and 1983, respectively.

2. Growth in real Gross National Product of -0.74 percent in 1982, 3.76 percent in 1983, and 3.63 percent in 1984.

3. Inflation rates down substantially from the recent past: the Consumer Price Index will rise by 5.4 percent in 1982, 5.2 percent in 1983, and 6.2 percent in 1984.

4. U.S. unemployment rates which are high by postwar standards: 9.3 percent in 1982, 8.8 percent in 1983, and 8.5 percent in 1984.

5. Federal deficits which do not decline in fiscal 1983 or 1984, but remain at about $140 billion per year.

6. Monetary growth slightly above the Federal Reserve Board's targets for the rest of 1982, but continuing to be restrictive in 1983 and 1984. As a result, interest rates will edge downward until late 1982, then remain fairly steady through mid-1984.

7. The provisions of the Economic Recovery Act of 1981 will be implemented on schedule; but, the Accelerated Cost Recovery System (ACRS) will *not* be applied to Kentucky corporations during the biennium.

The basic methodology for the author's revenue estimates was the application of his previously described elasticity model, with the coefficients reestimated in October 1981.[2] The 1982 session of the Kentucky General Assembly enacted a number of changes in the tax structure; these have been incorporated into the revenue estimates.[3]

Table 2 presents the July 1982 LRC revenue estimates for the 1982-84 biennium. General Fund revenues are expected to grow by 14.0 percent in 1982-83 and 12.7 percent in 1983-84, substantially above the rates of growth of the past several years. Transportation Fund revenues will benefit from the new weight-distance truck tax and other legislative changes; receipts are estimated to grow by 17.8 percent in 1982-83 and 10.3 percent in 1983-84.

Notes

[1] See Lawrence K. Lynch, "The Shortfall In Kentucky Tax Revenues," and William B. Gardner II and Richard Thalheimer, "A Review of Kentucky Revenue for 1980-81 and a Forecast for 1981-82," *Kentucky Economy: Review & Perspective*, Vol. 5, No. 3, September 1981, pp. 10-11 and 6, 7, and 10. The changes in the data shown there and in this article result from changes enacted by the 1982 session of the Kentucky General Assembly: a reduction in the amount of coal severance tax revenue transferred from the General Fund to the Road Fund (from $42.7 million to $21.8 million), an increase of $0.5 million in the General Fund due to an improved investment policy, and the failure to adopt the federal Accelerated Cost Recovery System (ACRS). The LRC estimates of July 1981, assumed that ACRS would not be adopted, but the Department of Revenue estimate assumed that it would. Since ACRS was not adopted, the Department's estimate of corporation income tax receipts is $15 million higher in Table 1 than in the July 1981 article.

[2] This model was discussed in Lawrence K. Lynch, "The Outlook for Kentucky Tax Revenues," *Kentucky Economy: Review & Perspective*, Vol. 4, No. 2, June 1980, pp. 10-11.

(continued on the following page)

[3]The major changes enacted by the General Assembly were: a new 9 percent tax on beer, wine, and distilled spirits applied at the wholesale level (to replace the 5 percent retail sales tax on those commodities); a decrease in the amount of coal severance tax revenue to be transferred from the General Fund to the Transportation Fund; a new investment policy for state funds which will increase interest income in the General Fund; a new weight-distance tax; and a new overweight natural resource truck permit tax. Receipts from the weight-distance and overweight permit taxes will enhance the Road Fund.

Kentucky Revenues in 1981-82 and A Tentative Outlook for 1982-83

by Richard Thalheimer and William B. Gardner II*

Editor's Note: The following article is a condensation by the editor of the report prepared by the Kentucky Revenue Cabinet for presentation to the Legislature's Interim Committee on Appropriations and Revenue on July 27, 1982. A copy of the full report is available from the Revenue Cabinet.

A review of the past fiscal year (FY 82) reveals a Kentucky economy characterized by extremely high rates of unemployment; high interest rates; moderate increases in income and consumption, as evidenced by individual income and sales tax receipts; and a surprisingly strong coal sector. Monthly unemployment rates and employment figures vacillated during the period, beginning with 8.1 percent in July 1981, dropping to a low of 6.9 percent in September, and then jumping to levels in the neighborhood of 10 and 11 percent for the entire second half of the fiscal year. Employment figures reveal substantial declines in manufacturing and trade employment. Construction employment continued to decline from an already depressed base.

A review of the national economy for the fiscal year, as provided by the Data Resources Incorporated (DRI) national forecast service, reveals that U.S. personal income grew at a rate of 9.5 percent for FY 82 relative to a 12.8 percent growth the year before. U.S. corporation profits before taxes, which include the new Accelerated Cost Recovery System (ACRS) provisions of the Economic Recovery Tax Act of 1981, were off 19.5 percent over FY 81. The Consumer Price Index rose 8.7 percent over the fiscal year compared to an 11.5 percent growth rate in FY 81. The prime interest rate was 17.5 percent for the fiscal year compared to 16.6 percent in 1981.

Summary for Fiscal Year 1982

Faced with high unemployment and interest rates, but with a coal sector healthier than anticipated, and a lower level of inflation, the Kentucky General Fund grew a relatively modest 10.8 percent for FY 82. General Fund revenues of $2,098.5 million for FY 82 were $39 million greater than the Department of Revenue's July 1981 estimate and $41.53 million greater than its December 1981 estimate. This represents a 2 percent forecast error for the fiscal year. A closer examination of the revenue surplus reveals that $19.1 million was due to coal severance tax revenues exceeding the estimate of $218.75 million even after an upward revision of $10 million was made to the July 1981 estimate in December. Half of this, $9.5 million, is dedicated to the Local Government Economic Assistance Fund, which lowers the discretionary General Fund surplus to $32 million.

The coal severance and corporation income taxes contributed a combined total of $34.91 million to the FY 82 surplus. Sales tax receipts, on the other hand, were slightly lower than estimated. These three taxes have been the principal targets of an aggressive and effective auditing program implemented by the Revenue Cabinet this past year. Increased audit collections for last year, after increasing last year's collections by 10 percent to reflect a normal increase, accounted for approximately 40 percent of the surplus in revenues. The effect of the new programs instituted by the Revenue Cabinet was not included in the estimates as it was uncertain at the time how effective the new programs would be. Thus the growth in these major taxes was not all true economic growth but was, in part, due to more effective collection and audit techniques. In addition, Kentucky has not adopted the ACRS provisions of the Economic Recovery Act of 1981, and this accounts for a portion of the increase in Kentucky corporate profits relative to national profits. Finally, growth in the Kentucky coal sector was nothing short of spectacular for the fiscal year. Total coal severance tax receipts increased 33.1 percent in FY 82.

Another unusual factor contributing to the revenue surplus occurred in property tax receipts; these exceeded the estimates by $3.66 million. This increase is almost entirely attributable to a building and loan payment being received early (in June) rather than in the next fiscal year. Although the payment boosted property tax revenues this year, it will have to be deducted from next year's anticipated receipts from that source. Investment receipts exceeded the estimate by $5.4 million, largely as a result of new investment management practices instituted by the Office of Policy and Management over the fiscal year. Finally, "Other General Fund" exceeded its estimated value by $4.96 million. A major component of this excess was due to the fact that circuit court clerk criminal and traffic fines were $4.9 million greater than anticipated.

Transportation Fund tax receipts were $379.37 million in FY 82, which was $8.87 million over the estimate for a forecast error of 2.4 percent. Most of the surplus was due to growth of motor fuels consumption. Growth in the Transportation Fund was 5.0 percent for FY 82.

Richard Thalheimer is Executive Director and William B. Gardner II is Economist, Office for Revenue Estimating and Economic Analysis, Kentucky Revenue Cabinet.

TABLE 1

GENERAL FUND
WITH ADJUSTMENTS TO DECEMBER 1981 FORECAST FOR 1982-83 AS A RESULT OF SIGNIFICANT REVENUE MEASURES PASSED BY THE 1982 SESSION OF THE GENERAL ASSEMBLY
($ Millions)

Account	1981-82 Receipts	December 1981 Estimates for 1982-83	Percent Growth Over 1981-82	Legislated Adjustments to 1982-83 Estimates	May 1982 Official Budget Estimate for 1982-83	Percent Growth Over 1981-82
Sales and Use	$ 682.18	$ 766.00	12.3%	$(15.00)	$ 751.00	10.1%
Individual Income	600.82	723.00	20.3	(8.50)	714.50	18.9
Corporation Income	166.81	151.00	(9.5)	1.50	152.50	(8.6)
Coal Severance - Total	237.85	255.00	7.2	2.00	257.00	8.05
Less: Transfer	21.75	46.40[1]	NA[1]	(24.65)	21.75	–
Equals: General Fund Portion	216.10	208.60	NA[1]	24.65	235.25	8.9
Total Property Taxes	196.17	198.82	1.4	(0.85)	197.97	.9
Inheritance	29.60	31.00	4.7	0.00	31.00	4.7
Investment Receipts	37.75	36.93	(2.2)	7.00	43.93	16.4
Pari-Mutuel	11.73	12.00	2.3	(4.00)	8.00	(31.8)
New Taxes:						
Distilled Spirits Wholesale	NA	NA	NA	17.50	17.50	NA
Beer Wholesale	NA	NA	NA	24.40	24.40	NA
Wine Wholesale	NA	NA	NA	4.00	4.00	NA
Insurance Premiums Surcharge	0.96	NA	NA	7.395	7.395	NA
Other General Fund[2]	156.41	159.15	1.8	4.805	163.955	4.8
Total General Fund	$2,098.53	$2,286.50	8.9%[3]	$ 64.90	$2,351.40	12.05%

[1] Actual coal severance transfer in FY 82 was $21.75 million. Growth is shown as NA because the December 1981 estimate assumed that a larger transfer would occur for FY 83 than was, in fact, set by the FY 83 budget.

[2] Includes various fees and fines adjustments, alcoholic beverage floor stocks taxes, wine and distilled spirits consumption tax adjustments, cigarette tax adjustment, and other minor adjustments.

[3] The true growth rate for 1982-83 should be 10.1 percent when the coal severance tax transfer is reduced from the December 1981 estimate of $46.40 million to the enacted transfer of $21.75 million.

SOURCE: Table 3, Appendix 1 of *A Review of Revenues and Revenue Estimates for 1981-82 and Tentative Outlook for 1982-83* (Kentucky Revenue Cabinet: Frankfort, Kentucky, July 27, 1982). Additional calculations by the editor.

Estimates for Fiscal Year 1983

A summary of the FY 83 estimates by major tax source for the General and Transportation Funds is given in Tables 1 and 2. The December 1981 General Fund estimate was increased $64.9 million from the original estimate to $2,351.4 million for FY 83 as a result of legislation enacted by the 1982 session of the Kentucky General Assembly. Total FY 83 revenues for the Transportation Fund are expected to increase $9.4 million or 2.4 percent over the initial December 1981 estimate as a result of 1982 legislative changes.

As shown in Table 1, estimated general sales and use tax receipts were lowered a net $15 million. The exemption of alcoholic beverages, except as sold by the drink (HB 571), accounted for this reduction. Individual income tax receipts were reduced a net $8.5 million, principally due to the enactment of HB 342, which deals with conformity to the federal IRS code. Coal severance tax General Fund receipts were increased $24.65 million for FY 83 since the transfer of coal severance tax receipts to the Transportation Fund was set at $21.75 million, rather than $46.4 million, by the budget enacted in the 1982 session (HB 295). Investment receipts were estimated to increase $7 million in FY 83 due to enabling legislation (SB 243) that allows more effective and efficient management of investment funds. Pari-mutuel taxes were estimated to decrease by $4 million as a result of HB 143 which gave a tax credit to qualifying standardbred and thoroughbred tracks in Kentucky.

In addition to these adjustments to existing taxes, four major new General Fund taxes resulted from the 1982 session of the General Assembly, one of which will be nonrecurring General Fund revenue after FY 83. Revenues from the insurance premiums surcharge tax (HB 525) will cease to be a General Fund account when receipts reach $7.895 million. This figure should be reached around December 1982, after which time all money generated by this tax will be deposited in the Trust and Agency account, a separate fund. The remaining three major new taxes are the 9 percent wholesale distilled spirits, beer, and wine taxes as provided for in HB 571. These taxes are expected to yield $17.5 million, $24.4 million, and $4 million, respectively, or $45.9 million in total during FY 83. There are three one-time minor new taxes also provided for by HB 571 to correspond to the new wholesale alcoholic beverages taxes. These are the stocks taxes on dealers' inventories and a yield of $2.2 million is expected from them.

From Table 2 it is evident that the major adjustment to Transportation Fund revenues as originally estimated in December 1981 came from enactment of a new tax–the weight distance tax (HB 810). This is expected to yield $24.7

million in FY 83 from collections during three fiscal quarters at full compliance. In conjunction with this major new tax source, SB 144 provided for an overweight natural resource truck permit. This bill exempts certain overweight natural resource hauling vehicles from the weight distance tax and in turn imposes a tax on the value of the mineral being hauled overweight. Revenues from this new tax have been conservatively estimated to be $2.05 million in FY 83. Potential revenue could be in the neighborhood of $6-7 million if all qualifying vehicles took advantage of the provisions of the bill and applied for the permit, if the permit were granted by the Department of Transportation, and finally, if enforcement were at full compliance. In addition to increased fees and charges resulting in an expected increase of $9.25 million in Transportation Fund revenues, the other major change to this fund was the reduction in the transfer of General Fund coal severance tax revenues from $46.4 million to $21.75 million as provided for in the budget.

Outlook for Fiscal Year 1983

If the official budget estimates for FY 83 are not revised, the implied General Fund growth rate for FY 83, before legislated changes, would be 10.1 percent. With the legislated changes included, the growth rate increases to approximately 12 percent. Both are illustrated by Table 1. Although this might appear conservative if the anticipated economic recovery occurs on schedule, there is reason to delay revision of these estimates until October 1982, after a full quarter of collections has occurred. The anticipated effects of the Economic Recovery Tax Act of 1981 have been built into the budget estimates as they affect individual and sales tax receipts. It is expected that in FY 83 individual income tax receipts will increase by $29 million and sales tax receipts by $14 million, due to the 10 percent federal income tax rate cut on July 1, 1982. In addition, the three newly imposed alcoholic beverage taxes are expected to yield $45.9 million in FY 83.

At present it is difficult to evaluate the impact of the 10 percent federal income tax rate reduction on the economy and associated revenues. Furthermore, there is not enough experience with collection of the new alcoholic beverage taxes. It should however be possible to evaluate the assumptions underlying the forecast of revenues based on all of these taxes after a full quarter's experience. Hence a revision of these estimates is scheduled for late October.

Although the corporation income tax estimate is almost certain to be revised upward in October, it is not likely that severance tax receipts can maintain the same pace as in the past fiscal year. The sales and individual income taxes represent 60 percent of General Fund receipts and their performance will depend on the strength of the expected recovery, aided by the federal tax rate cut. A weak coal sector, high interest rates, and continued high levels of unemployment could possibly retard the expected recovery in Kentucky. Nonetheless, FY 83 is expected to exhibit a moderate decline in interest rates, an improved employment situation, and a moderate recovery for the Commonwealth.

As a final note, the Revenue Cabinet has just completed a monthly statistical General Fund and Transportation Fund tracking model. Within this framework, it will be possible to monitor efficiently the major accounts and determine if they are conforming to, or diverging from, the expected revenues. If there is significant divergence for three consecutive months, it will signal the need for revision in the appropriate accounts and suitable action will be taken.

TABLE 2

TRANSPORTATION FUND
WITH ADJUSTMENTS TO DECEMBER 1981 FORECAST FOR 1982-83 AS A RESULT OF SIGNIFICANT REVENUE MEASURES PASSED BY THE 1982 SESSION OF THE GENERAL ASSEMBLY
($ Millions)

Account	1981-82 Receipts	December 1981 Estimates for 1982-83	Percent Growth Over 1981-82	Legislated Adjustments to 1982-83 Estimates	May 1982 Official Budget Estimate for 1982-83	Percent Growth Over 1981-82
Motor Fuels Normal	$193.42	$186.00	(3.8)%	$ (0.50)	$185.50	(4.1)%
Motor Fuels Normal - Use	8.67	10.00	15.34	(0.20)	9.80	13.0
Motor Vehicle Usage[1]	103.05	125.75	22.03	(1.25)	124.50	20.8
Passenger Car License	19.99	20.00	0.05	0.00	20.00	.05
Coal Severance - Road	21.75	46.40[3]	NA[3]	(24.65)	21.75	–
Weight Distance	NA	NA	NA	24.70	24.70	NA
Overweight Permit	NA	NA	NA	2.05	2.05	NA
Other Transportation Fund	32.49	32.95	1.42	9.25	42.20	29.9
Total Transportation Fund[2]	$379.37	$421.10[3]	11.0%[3]	$ 9.40	$430.50	13.5%

[1] Does not include motor vehicle rental usage.
[2] Includes Departmental Fees, Sales and Rentals.
[3] Actual coal severance transfer should be $21.75 million so estimated receipts should be $396.45 million for growth of 4.5 percent.

SOURCE: Table 4, Appendix 1 of *A Review of Revenues and Revenue Estimates for 1981-82 and Tentative Outlook for 1982-83* (Kentucky Revenue Cabinet: Frankfort, Kentucky, July 27, 1982). Additional calculations by the editor.

(continued from page 7)

TABLE 4

INDIGENT CARE AND THE EQUITY ISSUE

Family Income Category	Percent of Population[1]	Percent of Gross Income[2]	Percent of Total Health Costs Incurred[3]	Percent of Total Out-of-Pocket Expenses (including insurance premiums)[4]	Percent of State Income Tax Revenues Paid[5]
Under $5,000	19.5%	7.4%	29.5%	17.5%	1.9%
$5,000-$9,999	25.0	17.9	31.5	26.1	11.9
$10,000-$24,999	46.5	53.2	33.9	45.8	57.1
$25,000 +	9.1	21.5	5.0	10.6	29.1
Total	100.1%	100.0%	99.9%	100.0%	100.0%

[1]Based on data from the Survey of Income and Education (1976). These are the most recent data of this type.
[2]Based on Kentucky Department of Revenue, *The Kentucky Individual Income Tax, 1961-1975*, September 1977, Table 6.
[3]Based on unpublished data for 1980 from the Health Interview Survey. Using the number of hospital days per 1,000 population for different income categories, the author derived the estimated distribution of total hospital expenditures by family income. This assumes identical distribution as that of all health expenditures, and assumes comparable population distribution in 1980 as in 1975.
[4]Based on unpublished data for 1978 from the Health Interview Survey.
[5]Kentucky Department of Revenue, *The Kentucky Individual Income Tax, 1961-1975*, Table 6.

In summary, this article has defined the magnitude and nature of the indigent medical care problem in Kentucky. Approximately one-fourth of all medical expenditures in this state are for indigent medical care, subsidized by government or private payers. While an analysis of potential solutions to this dilemma is beyond the scope of this paper, some implications are clear. First, the indigent medical care problem cannot be solved by simply expanding the current system of subsidies to low-income individuals. Catastrophic costs are incurred by families at *all* income levels and represent a major portion of the indigent medical care problem. Second, whether there is a serious equity problem posed by the current situation of cost-shifting is a matter of judgment. If one views private subsidization of indigent care as a tax, the share of that tax paid by low-income families roughly matches their share of total population--but their share of the tax is considerably higher than their share of total income.

If policymakers thought it desirable, the implicit tax for indigent care costs that is placed upon all recipients of health care could be made considerably more progressive by using state income tax dollars to replace what now amounts to private subsidization of indigent care. However, fiscal realities make it unlikely that the state could very comfortably afford to eliminate the remaining one-third of indigent care costs that are currently cost-shifted to the private sector. The amount involved is nearly double the General Fund dollars that have been utilized as matching-funds to obtain federal Medicaid dollars. Although Kentucky has come a long way in extending public support for indigent medical care, it is unclear how much further the state can realistically go in the decade ahead, without a more basic restructuring of the health care industry.

Footnotes

[1]Governor's Commission on the Study of Medical Care for the Indigent, *A Long Range Plan: Medical Care for Indigent Persons in Kentucky* (Frankfort, Kentucky, 1957).

[2]Medicare is a federal health insurance program that covers nearly all persons 65 years of age or over. It pays for basic health services for the elderly, many of whom would not otherwise be able to pay for care, but it does not cover catastrophic medical care expenses.

[3]Poverty level varies by family size and geographic location, but for a nonfarm family of four persons it is currently set at $9,300 per year.

[4]For example, suppose a family had an annual income of $20,000 but one member became mentally ill and had to be institutionalized. Average annual costs for such long term institutional care exceed $25,000. Once that family's medical expenses reduced its remaining income and wealth below a certain amount, all remaining medical costs would be paid by Medicaid.

[5]Given the above definition of poverty level, those with family incomes under $11,625 per year would be under 125 percent of the poverty level.

[6]The surveys utilized in producing the estimates of Table 1 include the National Medical Care Expenditure Survey, conducted in 1977 and reported in Judith Kasper, Daniel Walden, and Gail Wilensky, "Who Are the Uninsured?" Hyattsville, Md.: National Center for Health Services Research (National Health Care Expenditure Study, Data Preview 1, September 1980); also, the Survey of Income and Education, a one-time survey conducted in the Spring of 1976 with data reported in Bureau of the Census, *Money Income and Poverty Status in 1975 of Families and Persons in the United States and the South Region, by Divisions and States* (Current Population Reports, Series P-60, No. 112, June 1978).

[7]Survey data utilized in producing the estimates in Table 4 include the Survey of Income and Education (1976), op. cit., and the 1978 and 1980 Health Interview Surveys. The latter are annual surveys undertaken by the National Center for Health Statistics (Hyattsville, Md.).

(continued from page 4)

growth in Lexington was substantially larger in the second rather than the first half of the decade.

The Kentucky population and income growth experience of the 1970-80 decade generally resembled the national experience, as shown in Table 4. Both nationally and in Kentucky, the nonmetropolitan counties had larger population and income growth rates while the metropolitan counties had smaller growth. Kentucky's population and income growth differentials were larger than those of the nation. The migration of people from rural to metropolitan areas, which was an important national characteristic prior to 1970, now appears to be weakening, especially regarding metropolitan urbanization. (Growth can occur in areas that are urban but not metropolitan.) The subsiding of metropolitan growth that first affected central cities has now spread to entire metropolitan areas, with the largest growth rates occurring in nonmetropolitan counties. Possible reasons for the subsiding of metropolitan growth mainly concern technological improvements. With modern technology, producers can be close in a production, transportation, and communication sense without being close geographically.[3]

TABLE 4

PERCENT GROWTH IN POPULATION AND INCOME FOR KENTUCKY AND THE UNITED STATES, 1970-80

	Population		Per Capita Income	
	U.S.	Kentucky	U.S.	Kentucky
All Counties	11.4%	13.6%	141.0%	147.5%
Metropolitan	9.8	7.8	140.0	143.2
Nonmetropolitan	15.8	18.7	149.0	157.5

Footnotes

[1]The definition of Standard Metropolitan Statistical Areas was set by the Office of Federal Statistical Poljcy and Standards. An SMSA usually includes a city (or cities) of specified population size, which constitutes the central city and the county (or counties) in which it is located. It also includes contiguous counties when the economic and social relationships between the central and contiguous counties meet specified criteria of metropolitan character and integration. In New England, SMSAs are composed of cities and towns instead of counties. For a discussion of the specific criteria in defining SMSAs, see: Bureau of the Census, *State and Metropolitan Area Data Book, 1979* (Washington, D.C.: Government Printing Office, 1980), p. xvi.

[2]The original source for the population estimates is the Bureau of the Census, U.S. Department of Commerce, and for Kentucky, the Urban Studies Center, University of Louisville; the source for the per capita personal income estimates is the Bureau of Economic Analysis, U.S. Department of Commerce.

[3]For an interesting analysis of population changes, see: Gerald Carlino, "From Centralization to Decentralization: Economic Activity Spreads Out," *Business Review* (Federal Reserve Bank of Philadelphia, May/June 1982), pp. 15-25.

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KCEA Review and Forecast

by Charles W. Hultman*

As the national economy moves into the closing days of 1982, the outlook appears not to be promising for an early, strong recovery despite the unusual length of the recession that began in July of 1981 and previous projections by national forecasting services of an upturn in mid-1982. It appears that Gross National Product (GNP) in real dollars has actually declined as much as 1.5 percent during 1982 as a result particularly of decreases in business investment and residential construction. The Federal Reserve Board's Capacity Utilization indicator declined to 68.4 in October 1982, as compared to annual figures of 85.6 and 79.1 in 1979 and 1980, respectively.

Pessimism regarding the short-term future of the economy is reflected in the average of forecasts by ten econometric forecasting services as reported in the December 27, 1982 issue of *Business Week*. Real GNP is forecasted to increase by zero percent in the fourth quarter of 1982, 2 percent in the first quarter of 1983, and in the range of 3.8 to 4.5 percent in the remainder of 1983. Forecasts for the period between fourth quarters of 1982 and 1983 are 3.7 percent growth for real GNP and 5.5 percent for inflation. The forecasted unemployment rate is 10.2 percent for calendar year 1983. The most optimistic forecast in the group is for 5.3 percent real growth in 1983, while the most pessimistic forecast is for only 1.7 percent real growth. The Wharton Econometric Associates' forecasted amounts are higher than the average, for real growth, inflation, and unemployment rate. Also, the U.S. Department of Commerce Composite Index of Leading Indicators does not provide an indication of early, pervasive economic expansion; the index declined slightly in August 1982 and increased only slightly in September, October, and November.

An optimistic interpretation is sometimes given to the combination of reduced interest rates and reduced price inflation. The Consumer Price Index (CPI) and the bank prime rate have both declined significantly through both 1982 and (forecasted) 1983. But a reservation can be injected by noting that the "real" rate of interest might not have dropped. Insofar as an interest rate includes a premium for anticipated inflation, there is an "inflation margin" between the nominal (gross) and real (net) rate of interest. A 2 percentage point decline in nominal interest rate, therefore, would not constitute a reduction in real interest rate if anticipated inflation also declined by 2 points. Some critics have observed that the real rate of interest actually increased during 1982. Nevertheless, there is hope that the interest-increasing effects of a fear of inflation will be remedied by actual and forecasted reductions in the inflation rate and will lead to reduced real interest rates. These in turn could stimulate investment and lead to economic recovery. There is a consensus that basically the economy is strong and has potential for continued long-term growth.

The Kentucky economy, because it is strongly influenced by national economic conditions, has suffered large reductions in income and employment opportunities in 1981 and 1982. Unemployment rates in 1982 continue to be above figures for comparable periods in 1981. Preliminary unadjusted estimates of November total nonagricultura' wage and salary employment are approximately 50 thousand persons below a year ago. Nearly all sectors of the Kentucky economy declined during 1982. Especially hard hit were the construction and manufacturing industries and the agricultural sector.

It is possible that a continuing decline in the Federal Reserve discount rate and in short-term interest rates, coupled with an increased availability of credit, could stimulate some recovery in the automobile and related industries. Mortgage and other long-term rates cannot be expected to drop significantly, but even some decline would help the construction sector. These developments might lead to an earlier recovery than what is now expected, and might result in an upturn in the Kentucky economy.

Economists have several approaches to developing the capability to make short-term (12-18 months) forecasts of economic variables at the state level. The alternatives include the use of large-scale econometric models, input-output models, and the primarily statistical models that extrapolate from known past relationships among economic variables.

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**Charles W. Hultman is Chairman of the KCEA and Associate Dean for Research and Extension, College of Business and Economics, University of Kentucky.*

The staff of the KCEA, together with most all other offices at the University of Kentucky, has a new phone number. THE NEW KCEA PHONE NUMBER IS (606) 257-7675.

* * *

As this issue of *Review & Perspective* goes to press, the 1982 edition of the *Annual Report* of the Kentucky Council of Economic Advisors is also nearing completion. This year's volume has been edited and assembled by Professor Don Soule and includes articles on the national and on the Kentucky economies by Dr. Charles W. Hultman; on changes in the Kentucky economy, 1970 to 1980 by Dr. Soule; on the short-term outlook for the Kentucky coal industry by William Bowker of the Kentucky Department of Energy; on the outlook for agriculture by Dr. Larry D. Jones of the Department of Agricultural Economics, University of Kentucky; and on the short-term outlook for Kentucky residential construction by Dr. L. Randolph McGee, Director of the Kentucky Real Estate Research Center.

An order form for the *Kentucky Council of Economic Advisors Annual Report–1982* can be found on page 16 of this issue. Single copies of the *Annual Report* will be furnished, upon request, at no charge to persons in government, academia, media, or in the nonprofit sector. There will be a charge of $10.00, per copy, for all copies sent to persons in the for-profit private sector, and for all copies sent to all others beyond the first complimentary copy.

* * *

The monthly and quarterly databanks of the Kentucky Economic Information System (KEIS) on the state government system (the KEIS/Frankfort) have been expanded again within recent months. They now include all monthly and quarterly time-series maintained in the public monthly and quarterly databanks on the universities' version of the KEIS (the KEIS/KECNET). In the monthly databank these include seasonally adjusted values for the Kentucky employment series that have always been available in nonadjusted form. Of special interest in both the monthly and the quarterly banks are the time-series related to the United States economy from which we publish the "selected indicators" in each issue of this publication (see pp. 8 and 9). In addition to the U.S. series we regularly publish, there are also disaggregated energy-industry related series from the U.S. Producer Price Index.

Work continues on expansion of the annual state-level databank (ABANK). The three hundred or so series related to the agricultural sector, referred to in the article on agricultural data in this issue, should all be available by the time this issue is printed. A large section of data on state and local government finances–receipts and expenditures, based on the annual *Survey of Governmental Finances* (U.S. Department of Commerce, Bureau of the Census) will be available within the coming months. Also underway is a substantial expansion of the county-level databank (CBANK) to include individual county data series on disaggregated transfer payments, farm income and expenditures, and employment of wage and salary workers, by industry. For further information, query the KEISNEWS on the KEIS/Frankfort, run a new databank index, or call our office.

–moa–

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Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Recession Effects on Kentucky Employment: 1981-82

by Don M. Soule*

The national economy suffered two major downturns in the period 1980-82. The recession that began in January 1980 and ended in July 1980 was followed by only a partial recovery; the recession that began in July 1981 appeared not to have ended by late 1982. During the unusually long national recession since July 1981, Kentucky nonagricultural wage and salary employment fell to such low levels that in some industry groups, and manufacturing subgroups, the 1981 and 1982 seasonally adjusted monthly amounts were below the annual totals for 1970—over a decade earlier. Moreover, a general weakening in the Kentucky economy began approximately in 1977-78, well before the 1980 recession. The current employment problems, therefore, are influenced by two national recessions and one partial recovery in a two-year period and by an already weakened Kentucky economy. Especially hard hit have been the manufacturing and construction industries, as well as the agricultural sector.

An article in the *Kentucky Council of Economic Advisors Annual Report–1982* analyzed Kentucky and the nation according to annual employment and income in the 1970-80 decade.[1] Major economic sectors, industries and their subgroups, and income sources were compared. Kentucky was found to have suffered *relative* declines in nearly all of the categories studied, beginning generally in 1977-78; that is, growth of Kentucky income and employment slowed relative to national growth. An absolute decline in Kentucky employment began in most industry groups after the 1979 peak year.

This brief article supplements the *Annual Report* article and analyzes monthly Kentucky employment data for 1982 for broad industry groups and for both 1981 and 1982 for manufacturing subgroups. Unlike the *Annual Report* article, no attempt is made in this article to compare Kentucky with the nation nor to include the agricultural sector and the nonwage income sources (investments, transfer payments, and proprietors' income). The analysis is only of nonagricultural wage and salary employment in Kentucky–in total, by major industry groups, and by durable and nondurable manufacturing subgroups. To aid in the interpretation of data presented in the remaining tables, Table 1 shows the relative share of total nonagricultural wage and salary employment for each of the major industry groups and manufacturing subgroups in Kentucky in 1979.

Kentucky nonagricultural wage and salary employment is shown by years for 1970 to 1981 and by months for 1982, for the major industry groups (Table 2). For the manufacturing subgroups, amounts are shown for years 1970, 1979, and 1980 and by months for 1981 and 1982 (Tables 3 and 4). Monthly amounts are adjusted to remove the effects of seasonal variation.

TABLE 1

RELATIVE SHARES IN TOTAL NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT, BY INDUSTRY GROUPS AND MANUFACTURING SUBGROUPS, KENTUCKY, 1979

	Number of Workers	Percent of Total
Total Nonagricultural Wage and Salary Employment	1,245,400	100.0
Mining	54,542	4.4
Construction	69,167	5.6
Transportation	70,150	5.6
Wholesale Trade	63,642	5.1
Retail Trade	204,492	16.4
Finance	51,042	4.1
Services	204,775	16.4
Government	230,325	18.5
Manufacturing, Total	297,158	23.9
Durable, Total	171,950	13.8
Lumber	10,650	0.9
Furniture	6,233	0.5
Stone	10,233	0.8
Primary Metal	19,367	1.6
Fabricated Metal	20,967	1.7
Machinery, Excluding Electrical	40,792	3.3
Electrical Machinery	39,717	3.2
Motor Vehicles	15,967	1.3
Other	8,024	0.6
Nondurable, Total	125,208	10.1
Food	22,108	1.8
Tobacco	11,700	0.9
Textiles	6,908	0.6
Apparel	27,517	2.2
Paper	7,533	0.6
Printing	14,275	1.1
Chemical	16,350	1.3
Petroleum and Rubber	14,583	1.2
Leather	4,233	0.3

SOURCE: Bureau of Manpower Services, Kentucky Cabinet for Human Resources; through the Kentucky Economic Information System. All employment data in this and the following tables are by place of work.

All employment amounts in Tables 2-4 are shown as index numbers, with the 1970 annual totals equal to 100 percent. An index number value below 100 indicates that employment in that group is less than its annual amount for 1970. Note the declines in the manufacturing sectors (Tables 3 and 4). These declines are especially important because 23.9 percent of total Kentucky nonagricultural wage and salary employment was in manufacturing in 1979. Because employment would normally be expected to grow over the years along with population growth and the long run trend for a greater percentage of females to be employed, an employment level in 1982 not much higher than the 1970 level suggests a weak overall employment situation. An employment level in 1981-82 below the 1970 level represents a substantial employment decline.

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TABLE 2

KENTUCKY NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT, BY MAJOR GROUPS, 1970-81 BY YEARS AND 1982 BY MONTHS
(Index numbers: 1970 annual totals = 100; monthly amounts are adjusted to remove seasonal variation.)

Date	Total Nonagricultural	Manufacturing			Coal Mining	Construction	Transportation	Wholesale Trade	Retail Trade	Finance	Services	Government
		Total	Durable	Nondurable								
1970	100	100	100	100	100	100	100	100	100	100	100	100
1971	102.4	99.2	99.5	98.8	106.9	105.1	100.3	101.2	104.2	103.1	102.8	104.6
1972	108.6	106.1	110.8	100.5	112.2	117.1	100.4	126.6	107.0	103.2	110.4	109.2
1973	114.1	114.0	122.5	103.9	112.8	120.3	102.2	135.6	114.0	107.5	116.4	112.6
1974	116.7	115.0	124.3	104.1	141.9	114.1	102.8	137.8	117.5	113.2	120.8	115.0
1975	116.2	102.7	106.0	98.7	166.3	105.8	102.0	141.2	119.0	116.4	125.2	120.7
1976	121.2	108.0	111.6	103.8	167.3	114.0	103.2	145.5	125.8	122.1	132.0	123.4
1977	126.2	112.6	118.3	105.8	173.6	122.7	109.4	151.0	133.9	130.3	138.4	122.8
1978	133.0	115.5	123.1	106.7	185.9	143.3	114.0	162.1	142.6	137.3	146.4	127.7
1979	136.8	117.5	126.2	107.2	194.8	145.4	119.0	162.8	145.2	143.5	152.4	133.5
1980	133.0	109.2	113.7	103.9	188.6	122.0	116.1	158.7	141.1	147.0	156.6	133.8
1981	131.1	107.5	111.3	103.1	180.2	107.9	113.7	160.0	138.9	146.2	159.7	131.6
1982												
January	131.6	104.2	107.1	100.9	193.7	106.9	113.5	160.6	139.3	145.4	163.2	133.2
February	131.9	103.6	106.6	100.0	198.9	110.8	113.6	160.9	138.7	147.5	162.5	132.8
March	129.6	101.3	103.6	98.7	199.8	103.3	112.8	158.4	137.9	146.5	161.6	132.6
April	128.1	98.4	99.4	97.2	200.3	99.3	111.4	158.2	135.1	145.1	160.1	131.5
May	127.4	99.2	100.9	97.2	194.7	94.6	110.3	158.1	134.0	145.0	159.6	133.3
June	127.1	98.3	99.0	97.2	188.5	91.4	110.3	158.5	134.7	143.7	159.3	132.2
July	124.7	98.7	99.1	98.5	184.4	88.1	109.8	156.9	133.4	143.5	158.7	124.2
August	123.8	97.3	98.8	95.3	178.9	88.5	109.8	155.5	132.6	144.2	158.7	123.8
September	124.8	95.7	95.3	96.4	175.3	88.3	110.2	155.1	133.3	143.8	157.4	131.7
Change*	-12.0	-21.8	-30.9	-10.8	-19.5	-57.1	-8.8	-7.7	-11.9	+0.3	+5.0	-1.8

*Change in index points, 1979 to September 1982.

SOURCE: Same as Table 1.

The major findings of the data in Table 2 are that employment peaked in 1979 in most groups and that manufacturing and construction are the two Kentucky industry groups that have suffered the greatest recent declines. In 1982, employment fell below the 1970 annual totals (index numbers below 100) for construction, total manufacturing, and both durable and nondurable manufacturing. The final line on this table shows percentage point changes between 1979 and September 1982 for each group. Construction shows the largest decline, 57.1 percentage points, followed by 21.8 points decline in total manufacturing, 19.5 points decline in mining, 11.9 points decline in retail trade, 8.8 points decline in transportation, and 7.7 points decline in wholesale trade. Government and finance showed little change, while services increased by 5.0 points. Total employment declined by 12.0 points.

Tables 3 and 4 are similar to Table 2 but show detail for durable and nondurable manufacturing subgroups and annual totals only for 1970, 1979, and 1980 but monthly amounts for both 1981 and 1982. Index numbers were below 100 in four durable manufacturing subgroups: lumber, furniture, fabricated metal, and electrical machinery. The percentage point changes shown on the bottom line indicate that all eight durable manufacturing subgroups were lower in September 1982 than in 1979. Nearly the same picture of employment decline is shown in Table 4 for nondurable manufacturing subgroups. Index numbers were below 100 in food, tobacco, apparel, and leather for all of 1981 and 1982 and for textiles and chemicals during some months. Only one nondurable manufacturing subgroup did not decline in percentage points between 1979 and September 1982; printing increased slightly by 0.4 point. The largest decline in percentage points since 1979 occurred in the motor vehicle durable subgroup (68.2 points decline since 1979) while the lowest percentage of the 1970 total was reached in the leather nondurable subgroup (54.4 percent of 1970).

The employment declines shown in Tables 2, 3, and 4 illustrate the substantial effects that the recent national recessions have had on the Kentucky economy. Not shown are

(continued on page 10)

TABLE 3

KENTUCKY EMPLOYMENT BY DURABLE MANUFACTURING SUBGROUPS, 1970-82
(Index numbers: 1970 annual totals = 100; monthly amounts are adjusted to remove seasonal variation.)

	Durable Manufacturing Subgroups							
Date	Lumber	Furniture	Stone	Primary Metal	Fabricated Metal	Machinery, Excluding Electrical	Electrical Machinery	Motor Vehicle
1970	100	100	100	100	100	100	100	100
1979	115.2	92.6	141.8	135.7	113.1	152.2	107.8	158.1
1980	101.3	77.5	127.6	130.3	100.1	139.6	96.1	115.6
1981								
January	103.7	71.3	122.5	126.3	94.9	150.1	93.4	120.9
February	103.8	69.9	120.7	127.5	95.6	151.1	94.7	121.3
March	101.8	70.8	112.4	126.2	97.5	145.3	94.1	123.3
April	100.0	70.1	130.9	127.5	98.0	144.8	96.1	124.8
May	99.1	71.7	129.4	128.7	98.3	142.6	95.1	127.2
June	98.7	68.4	129.0	129.5	98.2	142.6	96.1	156.5
July	101.9	71.4	134.5	132.8	100.0	142.9	94.7	102.9
August	100.2	72.8	135.4	131.6	101.2	145.6	84.7	126.5
September	98.0	71.5	136.3	131.9	98.4	144.0	95.8	123.5
October	98.5	69.1	134.7	129.3	95.8	146.7	92.8	128.0
November	97.2	67.9	136.4	128.2	93.5	148.5	75.3	102.9
December	92.7	67.1	133.9	126.7	91.1	146.4	57.5	100.6
1982								
January	95.1	68.4	141.5	124.3	90.5	144.6	81.1	120.7
February	91.9	65.5	140.1	123.1	90.7	138.4	83.4	122.6
March	91.6	61.8	134.3	120.6	90.0	136.7	74.9	125.9
April	91.6	58.4	129.9	117.7	89.5	134.3	75.0	94.2
May	92.0	59.8	128.2	114.2	88.7	130.4	76.2	118.4
June	87.6	59.6	124.0	111.7	87.1	128.5	77.6	109.6
July	89.3	66.8	125.0	113.9	87.9	124.8	75.5	102.1
August	90.8	65.2	120.8	112.1	88.0	127.8	77.6	102.7
September	89.6	64.1	121.5	112.4	87.7	120.4	76.5	89.9
Change*	-25.6	-28.5	-20.3	-23.3	-25.4	-31.8	-31.3	-68.2

*Change in index points, 1979 to September 1982.

SOURCE: Same as Table 1.

(continued from page 1)
Both econometric and input-output models have been used in the past to analyze the Kentucky economy. In the following article Dr. M. M. Ali describes a new statistical model for projecting, on a quarterly basis, three variables pertaining to the Kentucky economy, and also includes his forecasts for these variables for the period ending with the fourth quarter of 1983. Dr. Ali forecasts total nonfarm wage and salary employment to continue to decline. Comparing similar quarters for the four years 1980-83, actual and forecasted employment decline throughout the four-year period. A generally similar pattern is shown for the civilian labor force. The earnings of all wage and salary workers show growth because of monetary inflation but at rates only slightly greater than the projected inflation rate, meaning that forecasted real growth in earnings is slight. These projected 1983 income and employment figures therefore appear to be compatible with those anticipated for the national economy.

Experimental Quarterly Forecasts for Kentucky

by M. M. Ali*

This short article presents experimental quarterly econometric forecasts for three Kentucky economic variables: civilian labor force (CLF), employment of non-farm wage and salary workers (WSE), and earnings of farm and non-farm wage and salary workers (WSI)–for the six-quarter period beginning with the third quarter of 1982 and ending with the fourth quarter of 1983. The forecasts are based on a five-equation model of the three Kentucky variables, plus two national variables: the Consumer Price Index (CPI) and the yield on U.S. Treasury Bills of one year maturity (ATBR). The two national variables are included because they are thought to have important influences on, and therefore predictive value for, the three Kentucky variables.[1]

In this model each variable is represented by an equation that describes the dependence of the variable on its own past movement and the past movement of the other variables. These dependencies are estimated or measured from historic quarterly data, starting with the first quarter of 1961 and ending with the second quarter of 1982, a total of 86 observations for each variable. All data are obtained from the Kentucky Economic Information System (KEIS) database maintained at the University of Kentucky.[2] It is recommended that the model be updated and forecasts be revised frequently as new observations are available.

Table 1 presents the reported amounts for the three Kentucky variables for the period 1980:1Q through 1982:2Q and forecasted amounts for the period 1982:3Q through 1983:4Q. Examining the forecasts, we expect continuation of the current low levels in both the civilian labor force and wage and salary employment and moderate growth in wage and salary incomes. The forecasted growth rate of current dollar wage and salary incomes is in the range of 4 to 7 percent.

TABLE 1

LABOR FORCE, EMPLOYMENT, AND EARNINGS, QUARTERLY FORECASTS AND ACTUAL AMOUNTS, KENTUCKY, 1980:1Q THROUGH 1983:4Q

Time Period	Civilian Labor Force[1] (thousands)	Employment[1] Wage and Salary Workers, Non-Farm (thousands)	Earnings[1] Wage and Salary Workers, Farm and Non-Farm (millions)
1980:1Q	1,567.2	1,201.9	$16,466
:2Q	1,640.5	1,222.9	16,478
:3Q	1,644.9	1,193.0	16,666
:4Q	1,627.4	1,222.0	17,279
1981:1Q	1,640.8	1,187.9	17,880
:2Q	1,673.6	1,196.6	17,521
:3Q	1,657.5	1,187.2	18,379
:4Q	1,676.1	1,201.3	18,635
1982:1Q	1,597.6	1,168.5	19,217
:2Q[2]	1,626.7	1,165.5	18,765
:3Q[2]	1,612	1,142	19,104
:4Q	1,595	1,184	19,865
1983:1Q	1,584	1,165	20,493
:2Q	1,623	1,156	19,868
:3Q	1,600	1,139	20,525
:4Q	1,605	1,176	21,089

[1] Earnings data are at annual rates and adjusted for seasonal variation; labor force and employment data are not adjusted for seasonal variation.

[2] Amounts for 1982:2Q and earlier are actual; amounts for 1982:3Q and later are forecasted.

SOURCE: See note 2.

With the first presentation of this experimental quarterly forecasting model for Kentucky, readers may ask why this model might be a useful forecasting tool. At the outset, we should mention that models of the type used here have had a forecasting record that rivals those of models that are far more complex, and that are more costly to build and maintain. Most

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regional models depend upon the forecasts of an elaborate national model, whereas the present model is self-contained; forecasts can be easily produced without depending upon a national forecast.

There are two basic steps in developing an econometric model–specification and estimation. At the specification stage, the structure of relationships among the economic variables is explored. This includes identifying the most important variables in the relationship, the nature of the relationship, and the interdependencies of the variables. One may argue that every economic activity (variable) depends upon every other; this may very well be true. But some dependencies are possibly insignificant and may therefore be ignored. Both economic theory and data experience play a significant role in detecting the importance or unimportance of each variable. Data experience is understood to mean the observed historical relationship in the movements of the variables. In specifying the equations employed in this model, economic theory is used primarily to identify the variables that would be most relevant for the purpose of forecasting, while the data experience of these variables has been used to specify their interdependencies. At the estimation stage, the quantitative measures are obtained for the interdependencies of the variables in the model by following the traditional practice of estimating them from the historic data. Thus data experience is used both at the specification and estimation stages.

The model built here is essentially "extrapolative" in nature in that it forecasts future movements of variables from their past movements. However, it does not merely extend into the future the past experience of a single economic variable, such as Kentucky employment. If that were to be done, one could simply fit a trend line, or estimate lag correlations of a number of lag lengths from the 86 quarterly observations and extend these into the future to produce quarterly forecasts.[3]

In our model, the forecasted value for a variable for a particular time (such as wage and salary employment for the third quarter of 1983) is estimated from the past (lagged) movement of that variable as well as from the past movement of the other variables. However, on the basis of what is learned at the specification stage of the model building, it may be found that not all of the past experience of a variable is necessarily influential. Often only a limited portion of the data experience of a variable has significant influence in the forecasting relationship. For example, variable 1 may depend upon variables 1, 2, 3 and 5 lagged by one and three, two, four and three periods respectively and may not depend upon variable 4 at all.

We have found that the variable wage and salary employment (WSE) is determined by lags 1, 2, 3 and 4 of its own; 1 and 3 of the variable wage and salary earnings (WSI); 2 and 4 of the variable civilian labor force (CLF); 1, 2 and 3 of the variable U.S. Treasury Bills of one year of maturity (ATBR); and 2, 3 and 4 of the variable Consumer Price Index (CPI). WSI is determined by lags 1, 2 and 4 of its own; 1, 2 and 3 of WSE; 4 of CLF; 1 and 3 of ATBR; and 4 of CPI. CLF is determined by lags 2 and 4 of its own; 3 and 4 of WSI; 4 of WSE; 1 of ATBR; and 4 of CPI. These lagged relationships are assumed to remain unchanged over the 86 quarter data period from which quantitative measures of the influences of all the lagged variables are estimated. These estimates are assumed to remain unchanged in the future for forecasting purposes. Both the lag structure and the estimates of the influences of the lagged variables may change over time. Thus it is advisable to revise the model specification and reestimate the influences frequently as new observations are available.

Acknowledgments

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Notes

[1]This is derived from "An Econometric Forecasting Model for the Commonwealth of Kentucky," an unpublished report submitted by the author to the Office for Research and Extension, College of Business and Economics, University of Kentucky, July 1982. Readers should consult the original report for details.

[2]Data for total Kentucky wage and salary income, the U.S. Consumer Price Index, and one-year U.S. Treasury Bill rate are respectively from the Bureau of Economic Analysis, U.S. Department of Commerce; Bureau of Labor Statistics, U.S. Department of Labor; and the Federal Reserve System (through CITIBASE). Data for both the Kentucky civilian labor force and nonagricultural wage and salary employment series are from the Bureau of Manpower Services, Kentucky Cabinet for Human Resources, Frankfort, Kentucky. The software utilized for this experiment was the statistical package TSP, Time-Series Processor.

[3]Consider pairs of observations. Observations in each pair are separated by a fixed period of time. Correlation between these observations is known as the lag correlation of lag length equal to the time period of separation. Thus, if the pairs consist of the first and fourth quarterly observations of the same years, this would be the lag correlation of lag = 3 quarters. Such correlation provides information about the future movement of a variable. For example, lag 3 correlation may be used to forecast three quarters ahead in the future.

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These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	July 1982	Aug. 1982	Sept. 1982	Qtr. III 1982	% Chg. 82-II 82-III	% Chg. 81-III 82-III
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	292.20	292.80	293.30	292.77	1.89	5.79
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	280.80	279.90	280.10	280.27	0.72	3.84
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	319.20	320.10	319.70	319.67	1.95	6.51
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	189.70	191.80	194.90	192.13	0.38	2.42
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	296.10	296.20	295.30	295.87	3.05	4.24
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	330.00	333.30	336.00	333.10	2.82	11.45
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	236.60	237.40	238.30	237.43	1.19	6.73
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	257.20	258.30	266.60	260.70	2.29	9.69
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	424.50	424.50	424.20	424.40	4.67	1.95
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FINISHED GOODS	281.70	282.40	281.40	281.83	1.26	3.77
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	282.00	282.70	282.00	282.23	1.39	3.31
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	311.40	311.00	310.70	311.03	0.38	0.52
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	289.60	289.10	290.20	289.63	-0.33	0.12
PRODUCER PRICE INDEX, CRUDE MATERIALS	323.40	320.50	316.30	320.07	-1.67	-3.76
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	255.50	250.70	242.90	249.70	-3.58	-4.26
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,SPOT(1967=100)	438.90	437.90	466.50	447.77	4.19	3.15
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,CONTRACT(JUNE76=100)	151.70	151.90	151.70	151.77	1.04	6.53
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	23.22	23.10	23.78	23.37	-0.03	17.36
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	54.59	54.28	56.80	55.22	2.21	19.10
AVG PRICE FOR ELECTRICITY, PER 500 KWH	38.40	38.47	38.26	38.38	3.46	6.11
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.20	1.19	1.19	1.20	1.67	-4.01
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.32	1.31	1.29	1.31	5.17	-3.35
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.26	1.25	1.24	1.25	5.54	-4.50
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.33	1.32	1.31	1.32	5.06	-4.16
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.45	1.46	1.44	1.45	4.67	0.07
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (MILLIONS)	110.52	110.64	110.98	110.72	0.50	1.89
EMPLOYMENT, TOTAL (MILLIONS)	99.73	99.84	99.72	99.76	0.02	-0.88
EMPLOYMENT, AGRICULTURE	3.46	3.43	3.37	3.42	1.07	1.57
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	96.27	96.40	96.35	96.34	-0.01	-0.97
UNEMPLOYMENT RATE, TOTAL	9.80	9.80	10.10	9.90	4.58	34.39
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	17.30	17.50	18.20	17.67	3.52	22.40
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG AT ANNUAL RATE)	NA	NA	NA	3080.70	4.75	3.35
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	1478.40	0.00	-2.12
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)	2590.40	2595.80	2601.70	2596.00	6.96	5.61
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	130.00	129.70	131.10	130.27	2.14	-2.20
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	138.80	138.40	137.40	138.20	-0.84	-9.69
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	11.91	9.01	8.20	9.71	-21.47	-35.66
PRIVATE HOUSING UNITS AUTH. 16000 PERMIT-ISSUING PLACES (SADJ THOU)	1062.00	888.00	1003.00	2953.00	32.57	11.27
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	332.47	333.81	335.95	334.08	1.28	3.00

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KENTUCKY DATA

	July 1982	Aug. 1982	Sept. 1982	Qtr. III 1982	% Chg. 82-II 82-III	% Chg. 81-III 81-III
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1648.80	1674.80	1718.40	**1680.67**	3.32	1.40
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1461.80	1481.50	1534.20	**1492.50**	2.29	-2.57
EMPLOYMENT, AGRICULTURAL	67.50	76.90	81.50	**75.30**	13.92	-2.92
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1394.30	1404.60	1452.70	**1417.20**	1.74	-2.56
UNEMPLOYMENT RATE	11.30	10.90	10.70	**11.00**	6.68	45.20
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1127.10	1125.20	1146.80	**1133.03**	-2.79	-4.56
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	46.40	45.50	44.60	**45.50**	-4.75	-5.27
EMPLOYMENT, CONTRACT CONSTRUCTION	45.70	46.40	46.10	**46.07**	0.95	-15.06
EMPLOYMENT, TOTAL MANUFACTURING	246.40	244.40	243.60	**244.80**	-2.33	-11.09
EMPLOYMENT, MANUFACTURING, DURABLE	132.60	132.70	130.90	**132.07**	-4.07	-14.04
EMPLOYMENT, MANUFACTURING, NON-DURABLE	113.80	111.70	112.70	**112.73**	-0.21	-7.37
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	65.20	65.30	65.30	**65.27**	-0.41	-3.55
EMPLOYMENT, WHOLESALE & RETAIL TRADE	248.50	247.90	249.40	**248.60**	-0.63	-3.56
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	51.70	51.80	51.30	**51.60**	0.06	-0.71
EMPLOYMENT, SERVICES (SIC 70-80)	213.10	213.50	213.20	**213.27**	-1.72	-0.26
EMPLOYMENT, CIVILIAN GOVERNMENT	204.10	204.60	227.50	**212.07**	-8.35	-0.45
EMPLOYMENT, STATE & LOCAL GOVERNMENT	163.70	164.40	187.70	**171.93**	-10.31	-1.28
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.10	38.50	38.60	**38.40**	0.35	-1.62
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	37.90	37.80	37.70	**37.80**	-0.44	-2.74
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.40	39.20	39.70	**39.10**	1.47	-0.42
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	8.34	8.36	8.53	**8.41**	0.80	5.83
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	9.09	9.13	9.24	**9.15**	1.40	6.15
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.50	7.49	7.75	**7.58**	0.62	6.86
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	317.75	321.86	329.26	**322.96**	1.15	4.12
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	344.51	345.11	348.35	**345.99**	0.95	3.24
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	288.00	293.61	307.68	**296.43**	2.12	6.42
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	8.11	8.55	7.82	**24.48**	-13.75	-27.60
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.43	3.31	3.18	**9.92**	0.93	-12.59
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	13.99	13.90	15.57	**14.49**	10.84	13.50
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	565.20	663.03	529.38	**585.87**	-5.24	-2.51
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	40.40	47.70	34.00	**40.70**	-13.95	-13.53
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	19.52	14.61	19.32	**53.45**	*	-7.84
CONSTRUCTION (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	154.60	204.50	198.40	**557.50**	46.94	-10.30
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	317.00	454.00	449.00	**1220.00**	23.48	22.49
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	12.59	19.11	18.35	**50.05**	23.60	17.56
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	584.00	734.00	1174.00	**2492.00**	84.18	23.73
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	19.02	25.78	38.65	**83.45**	71.18	13.76
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	71.43	62.53	78.80	**212.76**	*	14.77
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	7.15	7.84	7.99	**22.98**	*	-41.34
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	-10.82	37.54	16.61	**43.33**	88.00	-54.25
SALES OF ORDINARY LIFE INSURANCE	515.07	506.50	641.46	**1663.03**	10.34	31.11
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	168.13	160.64	196.48	**525.26**	*	13.27
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	62.98	56.16	62.78	**181.92**	*	7.04
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	54.32	63.18	56.04	**173.53**	*	22.18
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	9.92	4.36	30.07	**44.35**	*	22.77
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	26.69	29.66	32.38	**88.73**	*	1.91
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.30	16.28	15.83	**48.42**	*	-5.83
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	8.67	8.31	9.27	**26.25**	*	-4.10

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY),
VALUE OF CONSTRUCTION CONTRACTS;
LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION, INC.,
SALES OF ORDINARY LIFE INSURANCE;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

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(continued from page 5)

income declines caused by employment declines. Recession-caused employment changes for wage and salary workers may differ from income changes, for several reasons. Income data are influenced by inflation. Also, data on the number of employed workers do not distinguish according to number of hours worked per week nor according to wage rates. For example, unemployment of a 40 hours per week worker and a 20 hours per week worker (or a low-wage worker and a high-wage worker) have the same effects on employment statistics but much different effects on earnings statistics. When seasonally adjusted 1982 earnings data for total nonagricultural wage and salary workers are deflated for inflation, the decline between annual 1979 and second quarter 1982 was 5.64 percent. The employment decline for the same group and period was 6.42 percent.

This article and the *Annual Report* article suggest the possibility that the Kentucky economy is being influenced by changes in basic economic relationships—that is, structural changes. Much of the Kentucky economy began to decline relative to the national economy after about 1977-78, and to decline absolutely since about 1979. Also, the two recessions of the 1980-82 period affected Kentucky more adversely than did previous recessions, comparing Kentucky with the nation. These developments raise several questions. Have structural changes occurred in the Kentucky economy that have changed its response to national business fluctuations; are national structural changes also affecting the Kentucky economy; have there been changes in the nature of the Kentucky economy that seem unrelated to national trends?

TABLE 4

KENTUCKY EMPLOYMENT BY NONDURABLE MANUFACTURING SUBGROUPS, 1970-82
(Index numbers: 1970 annual totals = 100; monthly amounts are adjusted to remove seasonal variation.)

	Nondurable Manufacturing Subgroups								
Date	Food	Tobacco	Textiles	Apparel	Paper	Printing	Chemical	Petroleum and Rubber	Leather
1970	100	100	100	100	100	100	100	100	100
1979	88.8	88.8	115.5	101.7	159.2	106.6	115.1	170.7	88.0
1980	88.0	79.7	106.3	101.1	154.2	108.3	111.0	160.0	82.8
1981									
January	85.5	81.4	104.3	97.0	149.2	110.3	107.3	168.0	77.4
February	86.2	82.4	103.1	95.5	149.5	109.8	107.2	173.2	75.4
March	85.8	83.2	104.5	97.7	150.4	109.8	107.4	170.0	70.5
April	83.9	82.6	105.2	97.3	154.2	109.0	108.1	174.5	83.5
May	84.1	81.8	105.7	98.6	154.4	110.6	107.5	176.1	82.2
June	84.6	81.5	103.7	98.5	156.1	110.3	108.2	176.3	79.4
July	87.1	82.2	104.5	100.8	157.1	111.3	110.1	178.2	77.6
August	84.4	83.6	103.1	97.7	158.4	109.8	110.5	174.8	78.3
September	85.2	83.7	106.0	98.6	158.9	108.5	107.9	173.0	78.7
October	85.7	82.5	102.0	97.7	159.7	110.1	107.7	174.3	77.8
November	85.6	82.7	97.2	94.3	157.9	110.2	106.5	170.5	77.5
December	85.0	81.0	95.7	96.4	157.5	110.3	103.9	163.8	74.9
1982									
January	85.4	78.8	92.5	95.4	153.4	108.8	104.4	168.5	77.6
February	85.3	77.0	93.1	94.8	151.8	110.6	102.9	165.1	73.2
March	82.1	73.8	94.4	95.7	152.6	110.6	101.8	165.4	66.2
April	82.8	73.8	96.9	88.8	152.0	109.8	101.2	165.2	68.6
May	82.9	72.6	102.5	89.9	152.3	109.9	99.9	163.1	65.4
June	82.7	73.1	107.2	90.6	152.0	109.0	99.2	161.2	63.2
July	83.0	72.3	109.6	93.8	153.0	109.8	100.2	159.6	55.7
August	80.1	65.1	104.9	89.3	152.1	108.3	99.9	162.2	56.2
September	80.9	65.1	97.7	94.6	150.6	107.0	99.4	163.8	54.4
Change*	-7.9	-23.7	-17.8	-7.1	-8.6	+0.4	-15.7	-6.9	-33.6

*Change in index points, 1979 to September 1982.

SOURCE: Same as Table 1.

Note

[1]The *Kentucky Council of Economic Advisors Annual Report–1982* is in the final stages of production as this issue of *Kentucky Economy: Review & Perspective* goes to press.

(This page presents a preliminary and experimental analysis of employment changes during recessions. The analysis is supplemental to, but not part of, the article that begins on page 3.).

EMPLOYMENT CHANGES IN SEVEN POSTWAR RECESSIONS
KENTUCKY AND UNITED STATES

Peaks		Troughs			
Date	Amount (thousands)	Date	Amount (thousands)	Duration (months)	Percent Change
			United States		
6-53	50,386	8-54	48,644	14	-3.5%
3-57	53,052	5-58	50,760	14	-4.3
4-60	54,561	2-61	53,373	10	-2.2
3-70	71,363	11-70	70,264	8	-1.5
10-74	78,599	4-75	76,333	6	-2.9
3-80	90,929	7-80	89,692	4	-1.4
7-81	91,396	9-82	89,188	14	-2.4
			Kentucky		
1-53	639.5	10-54	582.1	21	-9.0
7-57	663.8	5-58	617.8	10	-6.9
4-60	658.4	5-61	638.8	13	-3.0
12-69	888.9	11-70	918.0	11	+3.3
10-74	1,074.7	4-75	1,041.1	6	-3.1
9-79	1,250.8	7-80	1,177.7	10	-5.8
2-81	1,221.2	8-82	1,126.3	18	-7.8

Seasonally adjusted national employment data are the total number of wage and salary workers on nonagricultural payrolls, as reported by the Bureau of Labor Statistics of the U.S. Department of Labor. Kentucky data from the Kentucky Cabinet for Human Resources were seasonally adjusted for comparability with the national series. Periods for analysis are the National Bureau of Economic Research (NBER) designated peak and trough dates extended six months both before and after. Dates for employment highs and lows differ not only between Kentucky and the nation but also from the more broadly determined NBER designated peaks and troughs.

Employment declined during each recession for the nation but during only six recessions for Kentucky. Kentucky employment during the period of June 1969 through May 1971 generally increased, although several plateaus occurred. These peculiar movements prevented the selection of a peak and trough in the manner used for the other recessions. Instead, the Kentucky comparison for the 1970-71 national recession was based on the NBER designated national peak (December 1969) and trough (November 1970). Other than for the unusual Kentucky performance in the 1970-71 national recession, the employment declines were larger in percentage terms for Kentucky than for the nation in all of the six other recessions. It is recognized, however, that employment data are not the only, nor necessarily the best, economic series for evaluating the effects of national recessions. This preliminary analysis based on employment data suggests the need for further study.

Agricultural Data in the Kentucky Economic Information System

by Elsie M. Youmans and Margaret O. Adams*

Kentucky may correctly be referred to as an "agricultural" state because personal income in the agricultural sector is approximately three times the percentage of total personal income in Kentucky as in the nation. Because of agriculture's above-average importance in Kentucky, statistical data on the agricultural sector of the economy are an important component of the Kentucky Economic Information System (KEIS). The KEIS presently contains approximately 300 annual state-level time series relating to agriculture, dating from 1951 to the present, and these have recently been reviewed, reorganized, and made more accessible to all KEIS users. Additional series of monthly or quarterly data are accessible through the monthly and/or quarterly KEIS databanks; they include data such as farm earnings estimates, residence-based agricultural employment estimates, prices received for selected commodities, cash receipts, and stocks of grain.

The major published source for agricultural data is *Kentucky Agricultural Statistics*, an annual publication of the Kentucky Crop and Livestock Reporting Service (CLRS), a cooperative agency of the U.S. and the Kentucky Departments of Agriculture. The CLRS, in its bimonthly *Kentucky Agri-News*, also publishes timely estimates of crop and livestock production, prices, and other related information. Two annual U.S. Department of Agriculture publications that incorporate and supplement the data reported by the CLRS are *State Income and Balance Sheet Statistics* and *Agricultural Statistics*. Data related to crops, livestock, and poultry are estimated from sample surveys of farmers and farm-related businesses. These data are revised from time to time and also are supplemented by information from the every-five-years U.S. Census of Agriculture and other sources. In recent years, budgetary reductions have caused the CLRS to reduce the number of monthly as well as annual data series reported. Of particular loss are data on employment of Kentucky farm workers, both hired and family members, and on the average hours worked by each of several farm worker categories.

It is important, when talking about statistics related to the agricultural sector of the economy, to keep in mind some aspects of these data which distinguish them from statistics related to the nonagricultural portion of the economy. For example, personal income of rural farm residents includes both agricultural income and income from nonfarm sources. Statistics for agricultural income and employment differ in several other important ways: a) many agricultural workers do not receive wage income because they are owners, tenants, or relatives; b) some farm proprietors and relatives receive wage income from work on farms other than their own; c) many farm proprietors and relatives earn wage income from work in nonagricultural jobs in addition to their farm work; d) farm net profits are difficult to define and measure because much labor cost does not take the form of wages paid to hired workers; and e) earnings and employment data, by types of crops, cannot really be computed because several crops are grown with common labor and other costs.

Insofar as data related to the agricultural economy are available, there are several different ways this information can be organized and described. For example, the components of gross farm income are:

- cash receipts from farm marketings, by commodity (46 series);
- government payments, by program (16 series);
- nonmoney income (2 series); and
- other farm income (4 series).

In order to derive net farm income of farm operators, farm production expenses (17 series) and the net change in farm inventories (3 series) are subtracted from total gross farm income.

Production related statistics provide another way of analyzing the farm economy and include such data as:

- prices received by farmers, by commodity (45 series);
- acres harvested, by commodity (34 series);
- yield per acre, by commodity (24 series);
- production of eggs and milk (2 series);
- crop production, by commodity (33 series);
- number and value of livestock, by class (26 series);
- value of crop production (27 series); and
- stocks of grain on and off the farm (21 series).

Information related to farm real estate (8 series), statistics on the personal income of farm proprietors and for wage and salary employees from farming (3 series), and data related to farm employment (11 series) are also important in analyzing the Kentucky farm economy.[1]

An article detailing all of these data is beyond the scope of this publication. Rather, the following is limited to describing some of the more substantial categories of agricultural data and uses KEIS software to illustrate retrieval and manipulation of this information.

Cash Receipts from Farm Marketings, by Commodity

Cash receipts from farm marketings represent gross receipts from commercial market sales, as well as net of loans made or guaranteed by the Commodity Credit Corporation and purchases made under price support programs.[2] The value of home consumption for selected poultry categories and for honey are also included in cash receipts. Data on cash receipts from crops excluding net Commodity Credit Corporation (CCC) loans are available beginning in 1977. Data on net loans (loans made minus loans repaid) and on loans liquidated (loans acquired by CCC plus loans charged off) are also available beginning in 1977.[3]

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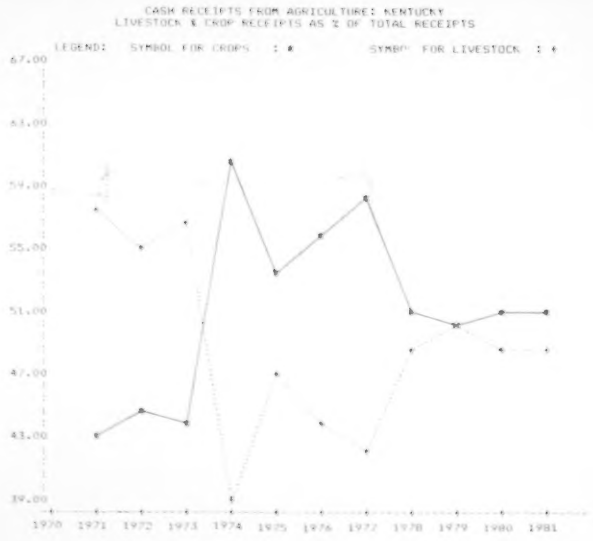
Beginning in 1978, data for livestock cash receipts include sales of horses of all types, including stud fees. Initially these data were added into the category, "other livestock and livestock products," a series that up until then included the sales of work horses among the miscellaneous livestock, but did not include all horses. More recently cash receipts for all types of horses have been reported separately. Kentucky has been the leading state nationally in cash receipts from other livestock and livestock products since all types of horses have been included in this category. Kentucky is traditionally the second-ranked state nationally in total cash receipts from tobacco, its largest commodity in terms of receipts.

Figure 1 charts Kentucky cash receipts from crops and livestock, including livestock products, for 1971-81 (1978-81, includes sales of all types of horses), by plotting each against time as a percent of total cash receipts. Table 1 gives the current dollar value for the four largest components of crop and of livestock cash receipts for the same time period.

FIGURE 1



Prices Received by Farmers, by Commodity

Average prices received by Kentucky farmers for their crops and livestock are generally at the point of first sale. The points of first sale by farmers are in some cases for products packed, graded, and delivered to processors. However, others are purchased at the farm in bulk. The average price concept is the price that would result from dividing the total dollars received by all farmers for a commodity by the total quantity of the commodity sold. Prices for most commodities are collected during a five-day period centered on the fifteenth day of the month and represent average prices received for sales of the commodity during the month. For some commodities, prices published monthly are reviewed at the end of the season and revised, if necessary, to take into account sales for the entire month. State-level seasonal average prices are computed by weighting monthly prices by the estimated percentage of sales made in the marketing season.[4]

Table 2 shows use of the standardized table-making KEIS program to display seasonal prices received by farmers for tobacco during the last five years.

Production and Value of Production

In addition to the 33 series related to crop production by commodity, there are series on the volume of milk and eggs produced. Production totals include commodities retained on farms for home use or for livestock feed. Production values represent a current price measure of the total output of each of the agricultural commodities; it is based upon the estimated season average price for that portion of the commodity sold, and is estimated before taxes and production expenditures.

TABLE 1

CASH RECEIPTS FROM FARM MARKETINGS - CROPS, LIVESTOCK, AND SELECTED COMMODITY COMPONENTS
(MILLIONS OF CURRENT DOLLARS)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL	919.600	929.100	1078.200	1319.400	1482.900	1441.100	1652.400	1730.100	2363.700	2256.300	2752.300	2782.600
CROPS	406.100	399.500	482.532	576.900	899.673	764.839	922.318	999.353	1211.048	1126.697	1403.184	1423.900
TOBACCO	302.904	271.234	330.612	306.434	469.622	407.802	521.599	619.202	678.462	549.234	674.997	766.199
SOYBEANS	34.309	55.358	71.442	139.553	192.836	138.286	162.639	154.953	294.973	274.846	383.679	259.874
CORN	30.229	28.863	36.948	75.828	152.456	141.760	160.209	144.552	165.786	190.334	227.821	219.984
WHEAT	4.943	6.663	8.103	13.591	39.109	27.592	19.447	20.446	11.009	36.392	44.245	91.862
LIVESTOCK	512.500	529.643	595.643	742.500	583.210	676.123	730.121	730.639	1152.690	1129.651	1349.139	1358.683
CATTLE	258.392	273.792	312.059	384.925	211.324	299.261	334.811	343.081	569.431	454.778	545.809	439.466
DAIRY	125.796	130.675	138.712	149.223	179.832	184.326	212.853	217.865	219.823	248.899	274.919	300.324
HOGS	90.690	87.725	108.672	158.555	142.267	143.930	129.953	122.786	143.676	163.815	179.827	166.142
HORSE	NA	NA	NA	NA	NA	NA	NA	NA	NA	230.000	320.000	422.500
OTHER, INCL HORSES	NA	NA	NA	NA	NA	NA	NA	NA	192.765	230.122	320.122	422.622

Total Number and Value of Livestock, by Class

Data on livestock are separated into six categories: cattle and calves, milk cows and heifers, cows and heifers that have calved, hogs and pigs, stock sheep and lambs, and chickens on farms but not including broilers. For each category, data are available related to total number of head at time of inventory, estimated value per head at the time of the inventory, and total value of the livestock class at the time of the inventory.

TABLE 2

KENTUCKY ANNUAL ECONOMIC DATABANK

SEASONAL AVERAGE PRICES RECEIVED BY KENTUCKY FARMERS - TOBACCO

	1977	1978	1979	1980	1981
PRICES RECEIVED BY FARMERS, TOBACCO, ALL	1.22	1.29	1.44	1.63	1.79
PRICES RECEIVED BY FARMERS, TOBACCO, BURLEY	1.22	1.32	1.46	1.66	1.81
PRICES RECEIVED BY FARMERS, TOBACCO, TYPE 22F CURED	1.34	1.12	1.14	1.38	1.63
PRICES RECEIVED BY FARMERS, TOBACCO, TYPE 23F CURED	1.25	1.10	1.12	1.31	1.53
PRICES RECEIVED BY FARMERS, TOBACCO, ONE SUCKER	1.18	0.97	1.13	1.23	1.34
PRICES RECEIVED BY FARMERS, TOBACCO, GREEN RIVER	1.18	1.01	1.05	1.26	1.23

UNITS: DOLLARS PER POUND
SOURCE:KENTUCKY CROP AND LIVESTOCK REPORTING SERVICE, LOUISVILLE

Stocks of Grain

Stocks of grain include the total volume of grain in commercial and farm storage, for each of the major grains produced in Kentucky: barley, corn, oats, rye, sorghum, soybeans and wheat. Stocks are reported as either on-the-farm or off-the-farm. The latter include grain stored at mills, elevators, warehouses, terminals, and at processors. Data are issued at quarterly intervals (stored in the monthly databank in the appropriate month); annual stocks of grain data represent the marketing year stocks for each particular grain rather than a calendar year estimate.

Farm Real Estate and Number of Farms

Since 1975, data on the number of farms pertain to the number of agricultural enterprises with annual sales of agricultural products of $1,000 or more. In 1981, Kentucky ranked sixth nationally with 103 thousand farms. Preliminary data indicate that this number dropped to 101 thousand in 1982, representing a decline of approximately six thousand farms since 1975. Total land in farms remained approximately the same in 1981 as it was in 1980, 14.6 million acres. The preliminary estimate for 1982 reflects a decline of about 100 thousand acres. In 1981, the average size of a Kentucky farm was 142 acres, one acre smaller than in 1980, but still larger than pre-1978 average size.[5] The average Kentucky farm has approximately one-third the acreage of the average of all U.S. farms.

Agricultural Employment

Through 1980, CLRS estimated the number of hired workers and family farm workers. These data have been discontinued. The data series, total agricultural employment, is a residence-based (Current Population Survey) estimate, constructed and reported monthly by the Bureau of Manpower Services, Kentucky Cabinet for Human Resources, using BLS methodology (Bureau of Labor Statistics, U.S. Department of Labor). It is conceptually the equivalent of the sum of hired and nonhired farm workers. Nonhired farm workers include some but not all unpaid family workers. Table 3 gives total agricultural employment in Kentucky, 1970-81, the yearly percent change in this employment, and Kentucky agricultural employment as a percent of total U.S. agricultural employment for the same period.

TABLE 3

KENTUCKY AGRICULTURAL EMPLOYMENT TOTAL, PERCENT CHANGE, AND AS A PERCENTAGE OF U.S. AGRICULTURE EMPLOYMENT

Year	Total (thousands of persons)	Percent Change	Ky. as a Percentage of U.S.
1970	94.18	-12.54%	2.7%
1971	84.22	-10.58	2.5
1972	78.44	-6.86	2.3
1973	71.33	-9.06	2.1
1974	85.94	20.48	2.4
1975	85.38	-.66	2.5
1976	91.54	7.22	2.7
1977	87.36	-4.57	2.7
1978	71.98	-17.60	2.1
1979	70.03	-2.72	2.1
1980	68.79	-1.76	2.0
1981	66.93	-2.71	2.0

SOURCE: *Employment and Earnings*, Bureau of Labor Statistics, U.S. Department of Labor; Kentucky Cabinet for Human Resources; Kentucky Economic Information System.

Notes

[1] Data pertaining to all of the above-described categories of data are stored in and accessible through the KEIS, although not all data are available for the full period that begins in 1951. Data are revised and/or updated continuously. For a complete listing of the data series, users should obtain an index to the KEIS annual databank (ABANK). Detailed data on the components of county-level farm income and expenditures will be included in an expanded county databank, due for release in early 1983.

[2] *State Farm Income Statistics*, Supplement to Statistical Bulletin No. 576 (Washington, D.C.: Economic Research Service, U.S. Department of Agriculture, September 1977), p. 93.

[3] These data are reported in *Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1980* (Washington, D.C.: U.S. Department of Agriculture, 1981), pp. 79-80.

[4] *Agricultural Prices Annual Summary–1979* (Washington, D.C.: Crop Reporting Board, Statistics and Cooperatives Service, U.S. Department of Agriculture, June 1980), pp. 4-5.

[5] *Kentucky Agricultural Statistics 1981-82*, p. 100, and *Kentucky Agri-News*, Vol. 1, No. 16, August 13, 1982, p. 3.

DEFINITIONAL DIFFERENCES IN INCOME STATISTICS

Income is one of the most commonly requested and analyzed items of economic data. Unfortunately, variations in the definition of "income" can cause substantial differences among data series that can easily create confusion for the users of these income series. For example, per capita income for Kentucky in 1979 is reported as $7,120 using the definition *personal* income, but it is $5,978 using the definition of *money* income–both of which are reported by agencies of the U.S. Government. As a piece of information, income is derived and published in several forms, such as personal income, money income, disposable income, and taxable income. Data for these income concepts can come as totals or as amounts per person, household, or family, and as means or medians. Furthermore, these statistics are sometimes based on different population counts or on definitions of persons, households, or families that differ among series. Users of income statistics face numerous problems if they want to achieve comparability when using data from different reporting sources.

An important recent development that brings renewed concern over income definitions is the release of income statistics derived from the *1980 U.S. Census of Population and Housing.* The Census' money income statistics, reported every ten years, differ substantially from the personal income statistics reported annually by the Bureau of Economic Analysis of the U.S. Department of Commerce. Because income statistics from these two reporting sources differ significantly, the following review is presented. Detailed definitions of income can be found in the publications of the various government reporting agencies. Instead of repeating or summarizing these definitions, the following list identifies major areas of difference in income definitions to illustrate why the several agencies may report different amounts for what appears to be the same income concept.

1. Source of information. Income data may be from actual payments by business firms or from the recollections of persons questioned in a survey or census. Some statistics are from complete counts of all firms or persons while others are estimates based on samples.

2. Place of work or residence. Income data derived from employers reflect the recipient's place of work whereas an income survey of persons will reflect place of residence. Substantial differences in income amounts for geographic areas result from daily commuting of workers between places of residence and work. These differences are magnified when the geographic area measured is small.

3. Purchasing power of the dollar. If reported in terms of actual dollars in a particular year (current dollars), income statistics over time will be influenced by inflation. An income series may be corrected for inflation by being stated in "real" dollars, which means dollars whose purchasing power is held constant in terms of a particular year, such as "constant 1972 dollars."

4. Money vs. nonmoney income. Much of personal income takes a form other than money. Therefore, the Census money income series usually has smaller amounts than the BEA personal income series which also includes nonmoney income. Examples of nonmoney income are: increased value of nonsold property; value of fringe benefits received by workers but paid by employers; return on investment in an owner-occupied home; room and board as a supplement to money wages; stockholders' share of retained corporation profits, etc.

5. Persons, households, and families. A "person" may be defined to include not only individuals but also nonprofit institutions, private noninsured welfare funds, and private trust funds. Therefore, per capita has a different meaning than average person, when used to report average income. The concept of a family or household has undergone a great deal of expansion in recent years, causing much imprecision in the meaning of "median family (or household) income"; a household may consist of a single adult; or of two adults, whether or not married and with or without children; of a single adult with dependents such as children or elderly parents. As the number of these household variations increases over the years, the precision in income definitions related to households and families lessens.

6. Dates of population counts. Statistics for the income derivatives show that income per person or per household may vary among reporting sources if the population estimate dates do not match. The population count used in the Census' measure of per capita money income is as of April of the census year, whereas the more commonly used BEA statistic of per capita personal income is based on the July 1 estimate for the year in question. In years between decennial censuses, computations of per capita income must rely on population projections. For example, per capita personal income in 1978 was based on the 1978 estimated population, projected from the 1970 Census, which was later shown to be significantly incorrect by the 1980 Census. These estimates have been revised, but the problem will reappear in the years between 1980 and 1990.

7. Disposable and taxable income. Taxation may affect income data. Disposable income refers to personal income remaining after deduction of personal income taxes. Taxable income refers to the amount of personal income subject to income taxes. These simple definitions imply that disposable and taxable incomes differ only by the income tax amounts and that taxable income is similar to personal income. But there are other important differences. Some types of income included in the BEA personal income definition are not subject to income tax, such as interest on state and local government bonds, personal exemptions for dependents, the zero bracket amount, and itemized deductions.

8. Preliminary and revised data. When users desire the latest available data, they encounter the problem of differences between preliminary and revised data. The first published amount for an economic series usually is a preliminary estimate which is soon replaced by the first revised amount. But a later update may be published following a periodic revision of data after several years. Insofar as income series from different sources do not have the same revision schedules, data may be noncomparable.

The areas of differences outlined above illustrate the complexity involved in measuring just one variable of economic activity. This is not to say that any one particular method is right or better, but that any data series must be analyzed within the context from which it was derived.

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KCEA Review and Forecast

by Charles W. Hultman*

Several factors suggest there may be an upturn in the national economy beginning in early 1983. Of immediate interest are the extent and magnitude of the recovery and the effects on the Kentucky economy.

There is a basis for limited optimism regarding the strength of the recovery. The revised Composite Index of Leading Indicators increased in each of the last five months, including a 3.6 percent increase in January. Business inventories are at such a low level that an upturn in demand will likely require increased production. Conventional mortgage rates on new and existing homes declined by about 2 percentage points during 1982 and by December had reached approximately 13.7 to 14.0 percent. Wharton Econometric Forecasting Associates project (March 2, 1983) that these rates will drop another 2 percentage points by the end of 1983. New housing starts, which declined to 1.06 million in 1982, are forecasted to rise to 1.63 million in 1983 and 1.96 million in 1984. Auto sales are also projected to rise to 9.6 million in 1983 from a level of 8.0 million in 1982.

However, the national unemployment rate remained unchanged in February after a slight decline in January 1983. While the Wharton forecast of 3 percent real GNP growth in 1983 is favorable relative to the actual 1982 decline of 1.8 percent, it is unfavorable in that 3 percent growth may merely absorb the new labor force entrants and leave the unemployment rate unchanged. Also, the reduced rate of inflation has caused real interest rates to decline less than nominal interest rates. It is expected that expansion during the early phase of the present recovery will be from increased consumer spending on durable goods and housing and some build-up of business inventories. A delay is expected for some time in any significant expansion of business investment for capital equipment and commercial expansion. Also, the export market is not expected to show early improvement because of the high value of the dollar in world markets and the widespread recession abroad, particularly in countries that are major markets for U.S. products.

The Kentucky economy, as reported in previous issues, has been severely affected by the lengthy recession which began in July 1981. Residential construction and durable goods production declined sharply throughout the state. Agricultural prices have not been favorable to farmers and, especially in recent months, the coal sector has experienced depressed conditions. If economic recovery commenced in early 1983 as appears may be the case, the state and the nation will have experienced at least 18 months of recession—the longest of the post World War II period. Sufficient data are not yet available to show whether the Kentucky economy has begun to recover.

Revised figures indicate that Kentucky's total civilian labor force of 1.694 million in the fourth quarter of 1982 was almost identical with its size for the same period in 1981. However, as shown in the table on page 9, nonagricultural wage and salary employment for fourth quarter 1982 was about 1.169 million, or about 3 percent below the comparable 1981 figures. In relative terms, the largest declines occurred in mining (almost 15 percent) and durable goods manufacturing (about 12 percent). Declines also occurred in most nondurable goods manufacturing industries; transportation, communications and public utilities; and contract construction, each of which experienced a 5 to 6 percent employment drop during this period. In only three sectors—finance, insurance and real estate; services; and civilian government—did a slight increase occur; in each case, it was less than 1 percent.

Using the experimental Kentucky quarterly model developed by Professor M. M. Ali described in the December 1982 issue of this publication, projections for civilian labor force, employment of wage and salary nonagricultural workers, and earnings of farm and nonfarm wage and salary workers are shown in Table 1. These same data, indexed to their values as of the third quarter, 1982 (the most recent available reported data) are illustrated by the plot in Figure 1. The latest projections differ from those of December 1982 for two reasons: the addition of data for one more quarter, and revisions in the

(continued on page 3)

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The 1982 edition of the *Kentucky Council of Economic Advisors Annual Report* has been issued and distributed. Copies are still available. To order one, write or call the KCEA office (451 Commerce Building, University of Kentucky, Lexington, KY 40506-0034; 606-257-7675).

* * *

Margaret O. Adams, Manager of the Kentucky Economic Information System (KEIS), has mailed a survey on the use of the KEIS to all known KEIS users. The results of this survey will form the basis for presentations at two national conferences later this spring. In addition, the KCEA staff will use the responses to plan the future maintenance and development of the KEIS. Any person who uses the KEIS, even if only occasionally, who has not received a copy of this survey, should contact Ms. Adams (606-257-7675). All persons are encouraged to return their survey as soon as possible.

* * *

When the staff of the KCEA receives requests for retrieval of information from the KEIS from persons who do not have their own access to this resource, they are generally referred to the Research Division, Kentucky Department of Economic Development. The staff there will provide the information. When the request comes from someone at the University of Kentucky, the request is referred to the Reference Department, MIK Library, where KEIS retrieval service is also available. Library Online Information Services (LOIS) at the Camden-Carroll Library, Morehead State University, and the Kentucky Department of Libraries and Archives provide similar services for their patrons.

A new policy has recently been adopted to handle data requests for which none of the above referrals are appropriate. This policy covers: (a) all requests for retrieval of data in machine-readable form; (b) large volume requests for data retrieval; and (c) requests that involve manipulation or calculation with the data, including any kind of specialized work, but *not* including any extensive programming. Requests that fall into categories (a) and (b) will be charged a $25 service fee, plus the actual computing charges and any charges for duplication of supporting materials. Requests that are considered type (c) will be charged a $50 service fee, plus the actual computing charges and any charges for duplication of supporting materials. An index to the ABANK (annual databank) will be produced and mailed for a charge of $10. A full set of standardized tables, produced by Program TABLE, will also be mailed out upon request for a fee of $10. The private sector subscription for online access to the KEIS (on the Kentucky Educational Computing Network) remains $500 annually.

* * *

Persons who use the KEIS primarily as a retrieval system for state-level statistical data may wish to consider regularly utilizing the KEIS program TABLE, in order to have handy reference to most of the state-level data stored in the KEIS. The program exists on both the state government and the KECNET systems. The output from Program TABLE is a set of standardized tables, each of which contains data for the five most recent periods for the data series included on that table. The user may also prepare a subset of tables. The full set of

(continued on page 15)

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This publication provides current information concerning the Kentucky economy. It is a forum for the publication of short expository articles, analyses of some aspect of the Kentucky economy, forecasts of the Kentucky economy, and tables of selected data chosen as indicators of developments in the Kentucky and national economies. The publication also sometimes includes information about enhancements to the Kentucky Economic Information System (KEIS) and articles dealing with information systems in general.

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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(continued from page 1)

TABLE 1

KENTUCKY LABOR FORCE, EMPLOYMENT AND EARNINGS
ACTUAL VALUES, 1980:1Q THROUGH 1982:3Q
FORECASTED VALUES, 1982:4Q THROUGH 1984:1Q

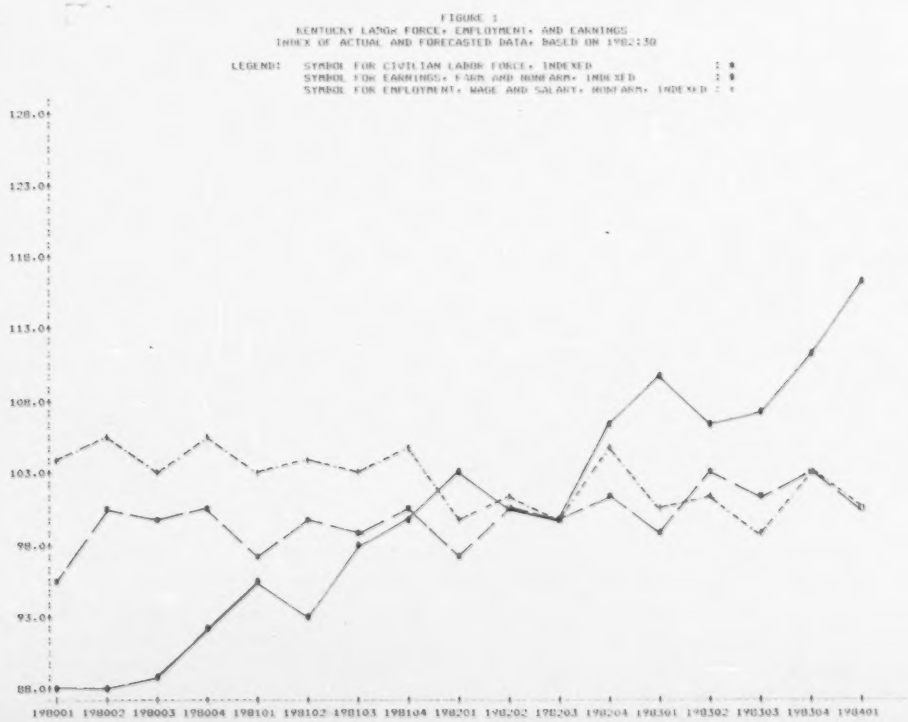
Time Period	Civilian Labor Force[1] (thousands)	Employment Wage and Salary Workers, Nonfarm[2] (thousands)	Earnings Wage and Salary Workers, Farm and Nonfarm[3] (millions)
1980:1Q	1608.0	1201.9	16,466
:2Q	1690.8	1222.9	16,478
:3Q	1668.5	1193.0	16,666
:4Q	1684.7	1222.0	17,279
1981:1Q	1636.9	1187.2	17,880
:2Q	1672.3	1199.7	17,521
:3Q	1659.2	1192.3	18,379
:4Q	1691.5	1206.3	18,635
1982:1Q	1639.0	1155.5	19,217
:2Q	1688.6	1177.3	18,765
:3Q[4]	1677.9	1155.7	18,700
:4Q[4]	1701	1211	19,829
1983:1Q	1660	1167	20,544
:2Q	1728	1171	19,940
:3Q	1702	1140	20,079
:4Q	1729	1191	20,839
1984:1Q	1691	1162	21,691

[1]Civilian labor force data have been revised since the December 1982 forecast, 1970:1Q to 1975:4Q and 1980:1Q to 1982:3Q. Data are not adjusted for seasonal variation.
[2]Nonfarm wage and salary employment data have been revised for 1981:1Q to 1982:3Q. Data are not adjusted for seasonal variation.
[3]Earnings data are seasonally adjusted.
[4]The data through 1982:3Q are reported values; figures after that are forecasted.

reported labor force and employment data. The result is a slightly more optimistic outlook for employment through 1983, notwithstanding a seasonal decline in employment for the first quarter 1984. The more pessimistic projection for earnings in this forecast, compared with the one published in December, is primarily the result of an expected moderation in inflation, together with general sluggishness in the Kentucky economy.

The Kentucky economy is very much affected by developments in the national economy and there is no reason to anticipate recovery ahead of the nation. If the state follows the national trend, unemployment could be as high or almost as high in 1983 as the 1982 revised rate of 10.6 percent. One of the favorable signs in the state is the apparent upswing in residential construction, both single and multi-family units, since early fall of 1982, compared with fourth quarter, 1981. This, in connection with increased automobile sales nationally during the fourth quarter of 1982, is expected to be a stimulus to economic activity in several related Kentucky industries. Inflation is also expected to be held at 4 to 5 percent during 1983, throughout the nation. Thus improvement can be expected in the Kentucky economy during 1983 and 1984 in terms of increased production of goods and services.

SOURCE: Civilian labor force and employment of wage and salary nonfarm workers are estimated by the Department of Manpower Services, Kentucky Cabinet for Human Resources. The earnings data are estimated by the Bureau of Economic Analysis, U.S. Department of Commerce. All actual values have been drawn from the Kentucky Economic Information System.



A Primer on Social Security Financing

by Don M. Soule*

The current political controversy over the federal Social Security program is centered around one main question—will the program be able to pay its future benefit obligations? This question is best answered in the context of a simplified explanation of Social Security financing. This paper is organized around three commonly expressed concerns. How can the Social Security program be financially sound when it carries only a small balance in its trust fund? Will today's worker receive in retirement benefits the value of his working lifetime contribution of Social Security taxes? How will Social Security benefits be paid when the retirement-age population grows large and the working-age population shrinks? This review is limited to the old-age retirement part of the Social Security program and omits the survivorship, disability, and medicare parts.[1] Other problem areas are also briefly described.

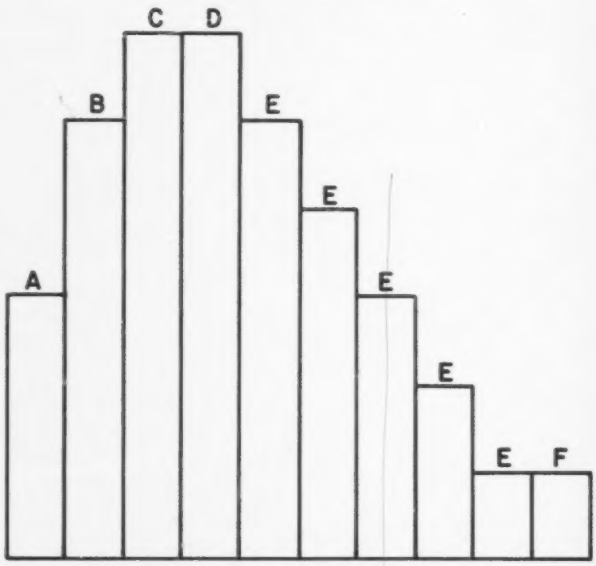
The Social Security Trust Fund

Private annuity policies sold by insurance companies are backed by large invested reserve balances. The Social Security program, in contrast, has a reserve balance that normally is smaller than the benefit requirements for a single year and is only a small fraction of the lifetime benefit obligation to the working population. How can a Social Security program be financially sound if its reserve balance is small? The answer is that the Social Security program's very large size and broad coverage allow each year's benefit payments to be financed from the tax revenue collected in that year. This arrangement is deliberate but it needs explanation because of the many misconceptions about Social Security and because of the obvious comparison with private annuity programs.

The Social Security program began receiving revenue in 1937 from a tax on workers' wages and an equal tax on employers' payrolls. These receipts were placed in a trust fund to be spent only for Social Security benefits, and all benefits were to be paid only from that fund. Except for tax rate increases, these methods are virtually the same today. The purpose of this arrangement was to create a "contributory" system wherein benefits received during retirement were justified by the retiree's previous work and Social Security tax payment experience.

Three important characteristics of the Social Security program can be attributed to this contributory feature. First, a retiree receives benefits as a right and need not demonstrate inadequacy of income or wealth as in a welfare program. Second, tax contribution differences among workers provide a rationale for paying different monthly benefit amounts. Third, a large balance accumulated in the Social Security trust fund during the program's formative period because the contributory principle required that payroll taxes be collected beginning the first year, but that workers not receive retirement benefits until after several years of tax contributions. This balance was later reduced to a small level as a greater percentage of workers qualified for benefits when they retired.[2] Some doubt was cast on the program's financial soundness because of the rise and fall in the trust fund balance and also because it is not obvious how a contributory retirement program can operate without a large trust fund balance.

Figure I



The rise and fall of the trust fund balance is explained in terms of Figure 1. Annual tax receipts greatly exceeded benefit payments in the program's early years because inadequate Social Security taxpaying experience meant that few if any retirees qualified for benefits. The annual excesses of taxes over benefits caused a balance to accumulate in the trust fund (column A). Over the years, a greater percentage of retirees qualified for larger benefits, causing smaller annual excesses of taxes over benefits and slower growth in the trust fund balance (B, C, and D). When annual benefits grew to E, they exceeded annual taxes and caused declines in the trust fund balance. Finally, the tax and benefit rules were adjusted to cause approximate equality of annual tax receipts and benefit payments and to stabilize the trust fund balance at a low level (F). After the formative decades, the normal condition in a Social Security program is for each year's benefits to be paid from each year's tax receipts and for the small trust fund balance to serve merely as a cushion between unanticipated changes in annual amounts of taxes and benefits.

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The lessons to be learned from Figure 1, therefore, are that: (a) the benefits paid each year are from taxes collected that year, (b) the level of benefits can increase over the years only if tax receipts increase, and (c) the trust fund need not have a large balance. Accumulation of the large initial balance was a transitional phenomenon caused by the public's desire, expressed in the original Social Security legislation, that benefits be paid to retirees only after they had made sufficient contributions of Social Security taxes. Annual receipts from Social Security taxes should be sufficient to pay annual retirement benefits, provided that tax rates are set at appropriate levels and are adjusted over the years for changing conditions.

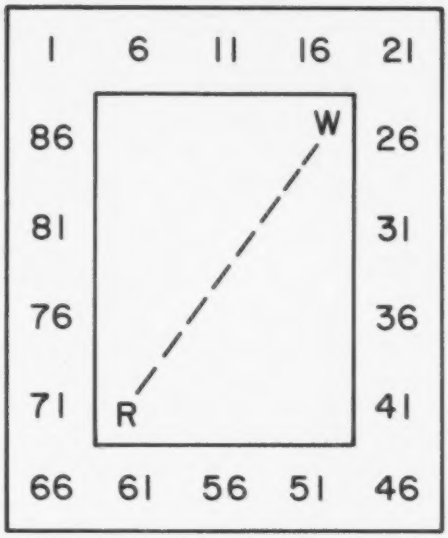
Young workers of today, however, may still have doubts that their retirement benefits are assured. A common misconception is that today's Social Security tax payments are deposited in a fund and invested, to be withdrawn several decades later to pay retirement benefits, as in private annuity programs. A 20 year old worker in 1983, for example, may believe that the Social Security taxes paid during his working lifetime will be used to pay his retirement benefits beginning at age 65 in year 2028. According to this view, a worker's tax contributions to Social Security (plus his employers' taxes) need only be enough to finance his retirement benefits. In fact, however, Social Security tax payments in any year are used to pay benefits to persons who are retired in that year. Consequently, the necessary level of Social Security tax payments during anyone's working lifetime is determined not by the estimated needs for his retirement period, but instead by the actual needs, each year, to pay benefits to current retirees. Herein lies the key to understanding the long run benefit adequacy of the Social Security program.

Long Run Benefit Adequacy

Figure 2 shows the nation's population arranged by age around a dinner table. A person eats without contributing food from birth until entering the work force (marked W), both eats and contributes food until retirement (marked R), and again eats without contributing food until death. Working and nonworking groups are seated on opposite sides of the table. If the rule was that only today's food contributors could eat, a substantial part of the population would not eat. Instead of such an inhumane rule, society has decided that workers will support nonworkers, just as these workers were supported when they were young nonworkers and as they expect to be supported when they become old nonworkers. Part of the food produced by the working group is transferred to the nonworking group so that all can eat. This is essentially the manner of Social Security financing. Those whom society deems unable to work are supported by those who work. Part of the income produced each year is transferred to government by taxation and is spent for Social Security benefits. This arrangement not only provides annually for Social Security benefits but also allows benefits to grow along with revenues over the long run.

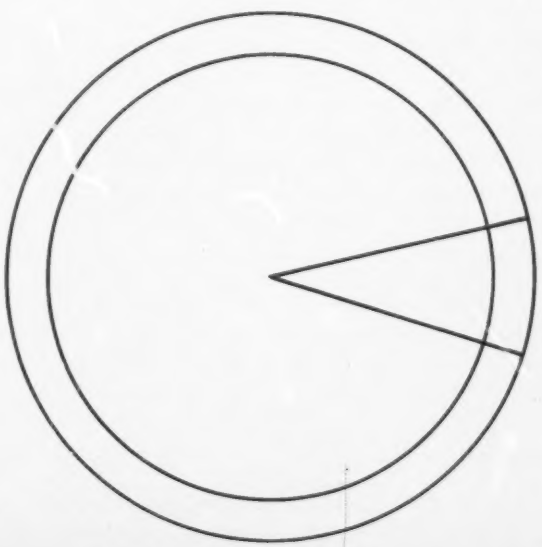
Social Security retirement benefits can grow over the years because they are *not* financed out of wages earned when current retirees were workers. Retirement benefits in 1983 are paid out of wages of workers in 1983. Growth in real wages

Figure 2



over the years allows growth in real Social Security benefits over the years. A worker's Social Security investment, therefore, can be considered to be a variable annuity based on the Gross National Product (GNP). Figure 3 shows GNP as a pie that grows over the decades, with a percentage used for Social Security benefits. As long as GNP increases, a person's Social Security benefits as a retiree are a share of the larger pie, whereas his Social Security taxes as a worker were a share of the smaller pie. Consequently, the "average" worker receives more in Social Security benefits as a retiree than he contributed in Social Security taxes as a worker, provided that major changes do not occur in the age distribution of the population.

Figure 3



Waves of Population Growth

The principles illustrated in Figures 2 and 3 are based on the assumption that the age distribution of the population does not vary over the years. But birth rates were low in the 1930s, high in the post-World War II years, and at reduced levels in recent years. A population increase caused by several years of high birth rates will move as a wave through the age groups as the population ages over the years. The postwar baby boom caused shortages in a succession of facilities—hospitals, housing, schools, and colleges—and currently in prison facilities. The extra facilities built for the population bulge were a great expense to the working age population of those years. In terms of Figure 2, the bulge in the population will reach retirement age in another generation. At that time, there will be an abundance of retirees and a shortage of workers because of the currently reduced birth rates. The possibility exists, therefore, that at some point there may be an imbalance between workers and nonworkers, necessitating smaller retirement benefits than expected, or larger payroll taxes than expected.

There are several possible ways to adapt the Social Security program to the population bulge problem: reduce the work-entry age; raise the work-exist (retirement) age; require all workers to pay Social Security taxes; screen benefit rules and practices to assure there are no unnecessary benefit payments; and create useful jobs for all of the working-age population. Some reactions to the population wave problem include recommending that the Social Security program be ended. This suggestion seems to assume that the dependent part of the population can somehow be ignored or can provide for retirement by private saving.

Many nations have Social Security programs, and many have programs more generous than ours. These nations also have population wave problems, many larger than ours. Nevertheless, most modern industrialized and urbanized nations have found that a large portion of the population is unable, in fact, to provide individually for retirement by personal savings. One primary reason for this is that, during recessions, personal savings for retirement are used for consumption. This is especially likely when recessions are deep and long, such as in the 1930s or even in the 1980-83 period. In many cases, lifetime earnings are not adequate to allow a private retirement saving program. Social Security programs are an orderly method whereby society provides some support for its dependent population without placing it on welfare programs.

Workers may easily recognize that take-home pay would be larger if there were no Social Security taxes. Perhaps less obvious is that their expenditure obligations might be larger because dependent relatives would receive no Social Security benefits. Workers vary in financial circumstances and in the number of potential dependents among elderly parents, grandparents, aunts, uncles, etc., and survivors of deceased relatives. Some workers are high in wages and low in number of dependent relatives, while others have different situations. Social Security programs provide an orderly way for workers as a group to "average" the costs of supporting the dependent part of the population.

Other Problem Areas

Some Social Security problem areas tend to be neglected because of the preoccupation with the "imminent bankruptcy" issue. Five of these are selected to illustrate the nature and complexity of the Social Security retirement program and to suggest how possible solutions might affect the program.

Mandatory participation. Should all workers be required to pay Social Security taxes or, at the other extreme, should the program be made completely voluntary? The main groups presently excluded are employees of the federal government (nonmilitary) and of some state and local governments and nonprofit organizations. If the program was made voluntary, the two additional groups of workers most likely to leave are the higher and lower wage workers. Higher wage workers might leave the Social Security program, preferring to invest their savings privately. Lower wage workers might forego future retirement benefits to obtain an immediate increase in spendable income by paying no Social Security taxes. Moreover, employers would be relieved of Social Security taxes on these workers. Consequently, the Social Security program might lose the lower wage workers who most need a public retirement program, the higher wage workers who are needed to help finance the program, and the related employer taxes. A voluntary Social Security program probably would soon die; on the other hand, compulsion is rarely popular.

Earnings after retirement. Should workers who continue working after retirement age continue to pay Social Security taxes while receiving no retirement benefits? The Social Security program's need for funds suggests that everyone should be encouraged to work for as long as reasonably possible, thereby improving the program's ratio of tax receipts to benefit payments. But continued full payment of Social Security taxes, while receiving no benefits, seems unfair to those who continue working after retirement age. The compromise solution has been: (a) to allow limited wage earnings while receiving full retirement benefits, (b) not to reduce Social Security taxes on this work, and (c) to reduce retirement benefits if wage earnings are too large. Postponement of retirement might be encouraged if Social Security taxes were reduced, and retirement benefits increased, for work beyond the normal retirement age. But these changes would reduce the Social Security program's ratio of tax receipts to benefit payments.

General vs. payroll taxes. The Social Security retirement program in this nation is financed by equal payroll tax rates on workers and employers, with ceilings on annual tax amounts. Many other nations, in contrast, supplement payroll taxes with revenue from general taxes on income and sales. This deviation from strict adherence to the contributory principle is a recognition that the provision of some income support to the elderly is a normal governmental function in a modern industrialized and urbanized nation. Complete financing from general taxes, however, would discard important advantages of the contributory principle. Retirees would less likely be regarded as having a right to receive benefits because of previous payment of taxes, and opposition might arise to paying benefits to persons who, although retired, have adequate income and wealth. Much of the public's current resistance to proposed reductions in Social Security benefits stems

from the program's contributory nature, whereby the previous collection of Social Security taxes is viewed as having created an obligation for government to pay retirement benefits. A policy of gradually infusing general tax revenue into the Social Security trust fund would allow a pragmatic determination of how far to go in using general taxes.

Taxation of Social Security benefits. Social Security benefits presently are not counted as taxable income of the retiree, although approximately one-half of the tax revenues for paying these benefits come from taxes on employers. These employer taxes can be considered to be fringe benefits to workers, which amounts were not previously counted as workers' incomes for income tax purposes. Including part of Social Security benefits in retirees' taxable income would be in line with proposals to include other fringe benefits in taxable income. The effects, however, would differ greatly among retirees. There would be little if any increase in income tax for retirees whose total incomes (including Social Security benefits) are low. But retirees with large incomes from taxable investments would experience income tax increases if Social Security benefits were included in taxable income. In effect, their Social Security benefits would be reduced. Thus, the proposal to count part of Social Security benefits as taxable income would have the effect of converting a social insurance program partly into a welfare program. Social insurance has its own source of tax revenue, pays benefits as a right, and relates benefit amounts to previous tax contributions. A welfare program, in contrast, is financed from general taxes, pays benefits only to persons who can prove need, and varies benefit amounts according to degrees of need.

Benefits for females. The Social Security program still reflects social customs of the 1930s when it was first enacted. At that time, females generally did not work for wages, especially if married and with children, and husbands were likely to be the sole support of families. Because some male retirees have wives while others do not, because Social Security taxes are the same rate for all workers, and because living costs in retirement are larger for couples than for singles, the following solution seemed sensible in the 1930s: pay the nonemployed wife a benefit equal to an additional 50 percent of that paid the retired husband, and pay a retired married female employee the larger of the regular wife benefit or the amount justified by her own employment experience. No provision was made for nonemployed husbands of employed wives.

As long as most married women did not work for wages and most marriages lasted for life, this system worked without major inequities. In recent years, however, the percentage of married females who work for wages has grown to exceed 50 percent, and marriages are less stable. Also, average earnings are much less for female than for male workers. Consequently, the payment of Social Security taxes by employed wives often results in little if any additional retirement benefits, causing an apparent inequity between families with and without employed wives. Moreover, divorce may cause a nonemployed wife to lose her retirement benefit.

The Social Security arrangement for females appropriate in the 1930s is out of step with contemporary conditions, but the more obvious changes would strain Social Security finances because of increased benefit payments or reduced tax receipts. For example, a married female employee could be paid the regular benefit as a wife plus her benefit earned as an employee, or an employed wife could be excused from all or part of Social Security taxes.

Conclusion

The major distinguishing characteristic of financing for Social Security retirement benefits is that special wage taxes are the exclusive source of funds. This contributory feature creates two illusions: that Social Security tax payments during a person's working lifetime are invested for future payment of his retirement benefits and, therefore, that the adequacy of Social Security taxes in 1983, for example, is determined by what will be needed to pay retirement benefits several decades later. In fact, the Social Security benefits to be paid in any year, be it 1983, 1993, or 2013, will be from tax receipts in that year. Consequently, the necessary level of Social Security taxes in any year is determined by the level of Social Security benefits that society, through the Congress, chooses to pay in that year. Looking more broadly, a person's obligations to society (paying taxes, serving in the military, suffering during a recession, etc.) and his receipt of benefits from society (schools, roads, defense, etc.) are strongly influenced by forces broadly affecting society. As illustrated in Figure 2, all members of society in many ways "eat at the same table." Social, political, and economic conditions influence each year's level of taxation and expenditures for general government purposes. This is true as well for Social Security taxes paid while working and benefits received while retired.

Footnotes

[1] Payroll taxes are for three distinct parts of the Social Security program: retirement-survivorship, disability, and medicare. Each part's designated share is placed in a separate trust fund for its exclusive use. Some general tax revenue is infused, mainly for medicare, and a floor is placed under retirement-survivorship and disability benefit amounts by the Supplementary Security Income (SSI) program, which is wholly financed by general taxes. Most employees and self-employed persons are covered by the Social Security program, although excluded groups include employees of the federal government (nonmilitary), of some state and local governments, and of some nonprofit organizations. In 1937 taxes were 1 percent each (worker and employer) on $3,000 of wages, for a maximum total tax of $60. The program was only for retirement benefits. In 1983 taxes are 6.7 percent (each part) on $35,700, for a maximum total tax of $4,783.80. The increase is mainly due to inflation, to program expansion to include survivorship, disability, and medicare, and to an increase in percentage of eligible population.

[2] The Social Security trust fund balance (for retirement and survivorship) reached 5.4 percent of GNP in 1956 but declined thereafter. In 1981, it was 0.9 percent of GNP, or enough to pay benefits for approximately three months.

selected indicators OF ECONOMIC

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Oct. 1982	Nov. 1982	Dec. 1982	Qtr. IV 1982	% Chg. 82-III 82-IV	% Chg. 81-IV 82-IV
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	294.10	293.60	292.40	293.37	0.20	4.51
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	279.60	279.10	279.10	279.27	-0.36	3.34
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	320.70	319.00	316.30	318.67	-0.31	4.72
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	195.50	195.40	193.60	194.83	1.41	1.95
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	295.50	295.80	294.80	295.37	-0.17	2.31
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	338.70	342.20	344.30	341.73	2.59	11.05
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	240.30	239.90	240.10	240.10	1.12	5.99
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	271.20	273.80	276.60	273.87	5.05	11.36
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	425.00	422.60	419.90	422.50	-0.45	1.92
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FINISHED GOODS	284.10	284.90	285.10	284.70	1.05	3.60
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	284.20	285.20	285.10	284.83	0.91	3.44
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	310.00	310.10	310.20	310.10	-0.23	0.27
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	289.50	288.90	288.70	289.03	-0.08	-0.22
PRODUCER PRICE INDEX, CRUDE MATERIALS	312.20	313.40	312.60	312.73	-2.20	-0.75
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	236.30	236.30	237.00	236.53	-5.13	-1.13
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,SPOT(1967=100)	437.10	443.80	443.80	441.57	-1.36	1.39
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,CONTRACT(JUNE76=100)	152.00	152.20	152.30	152.17	0.33	5.72
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	24.90	25.09	25.74	25.24	8.02	21.63
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	59.38	57.96	59.16	58.83	6.54	25.20
AVG PRICE FOR ELECTRICITY, PER 500 KWH	37.39	36.65	37.07	37.04	-3.49	6.08
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.21	1.24	1.23	1.23	2.62	-0.92
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.28	1.27	1.24	1.26	-3.34	-6.42
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.22	1.21	1.18	1.20	-3.89	-7.25
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.29	1.28	1.26	1.28	-3.13	-6.50
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.41	1.41	1.37	1.40	-3.52	-4.18
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (MILLIONS)	110.75	111.04	111.13	110.97	0.31	1.70
EMPLOYMENT, TOTAL (MILLIONS)	99.18	99.14	99.09	99.13	-0.47	-0.95
EMPLOYMENT, AGRICULTURE	3.41	3.47	3.41	3.43	0.52	3.09
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	95.76	95.67	95.68	95.70	-0.51	-1.09
UNEMPLOYMENT, CIVILIAN, TOTAL	11.58	11.91	12.04	11.84	7.39	31.13
UNEMPLOYMENT RATE, TOTAL	10.50	10.70	10.80	10.67	7.02	28.51
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG AT ANNUAL RATE)	NA	NA	NA	3101.40	1.72	3.27
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	1473.90	-1.93	-1.09
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)	2611.40	2631.20	2638.10	2626.90	5.41	5.30
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	139.60	140.10	141.20	140.30	2.06	9.72
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	135.70	134.90	135.20	135.27	-2.10	-7.52
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	7.75	8.04	8.01	7.93	-18.27	-34.01
PRIVATE HOUSING UNITS AUTH. 16000 PERMIT-ISSUING PLACES (SADJ THOU)	1172.00	1192.00	1305.00	3669.00	138.31	61.06
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	334.87	336.99	343.37	338.41	1.30	2.44

CTIVITY

KENTUCKY DATA

	Oct. 1982	Nov. 1982	Dec. 1982	Qtr. IV 1982	% Chg. 82-III 82-IV	% Chg. 81-IV 82-IV
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1707.38	1693.88	1682.14	1694.47	0.98	0.18
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1529.71	1510.02	1485.13	1508.28	0.22	-2.45
EMPLOYMENT, AGRICULTURAL	83.10	68.20	53.20	68.17	-9.47	-2.94
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1446.61	1441.82	1431.92	1440.12	0.73	-2.42
UNEMPLOYMENT RATE	10.40	10.90	11.70	10.99	6.63	27.83
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1171.80	1170.50	1165.30	1169.20	1.17	-3.08
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	45.50	46.30	45.30	45.70	-3.31	-14.63
EMPLOYMENT, CONTRACT CONSTRUCTION	53.80	52.80	50.10	52.23	-1.07	-5.03
EMPLOYMENT, TOTAL MANUFACTURING	239.90	237.30	236.80	238.00	-2.67	-9.30
EMPLOYMENT, MANUFACTURING, DURABLE	126.60	124.30	121.20	124.03	-4.96	-12.39
EMPLOYMENT, MANUFACTURING, NON-DURABLE	113.30	113.00	115.60	113.97	-0.06	-5.68
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	65.50	64.50	63.50	64.50	-2.57	-5.79
EMPLOYMENT, WHOLESALE & RETAIL TRADE	263.20	265.50	269.10	265.93	1.86	-0.44
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	52.50	52.00	52.00	52.17	0.00	0.38
EMPLOYMENT, SERVICES (SIC 70-80)	217.40	217.80	215.70	216.97	-0.05	0.60
EMPLOYMENT, CIVILIAN GOVERNMENT	227.90	228.40	227.30	227.87	9.39	0.78
EMPLOYMENT, STATE & LOCAL GOVERNMENT	187.70	188.30	187.30	187.77	11.52	-0.02
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.40	39.20	40.70	39.43	2.69	2.60
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	37.40	38.30	39.50	38.40	1.59	0.96
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	39.50	40.20	40.70	40.13	2.64	3.17
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	8.46	8.46	8.42	8.45	0.44	5.15
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	9.24	9.29	9.29	9.27	1.31	5.66
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.62	7.56	7.52	7.57	-0.18	5.53
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	324.81	331.63	337.64	331.36	2.60	7.32
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	345.58	355.81	366.96	356.12	2.93	6.68
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	300.99	303.91	306.06	303.65	2.44	8.87
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	9.07	8.34	8.21	25.63	0.34	-24.35
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.13	2.86	2.70	8.69	-2.63	-27.22
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	15.33	14.71	15.30	15.11	4.33	14.44
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	499.76	517.79	563.04	526.86	-10.07	-23.52
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	32.60	35.20	36.80	34.87	-14.33	-33.16
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	17.14	18.50	16.13	51.77	*	-16.97
CONSTRUCTION (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	140.50	120.70	96.60	357.80	-35.82	7.09
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	399.00	443.00	272.00	1114.00	-8.69	80.84
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	17.37	18.11	11.39	46.87	-6.36	68.59
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	894.00	680.00	644.00	2218.00	-11.00	55.65
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	27.71	22.77	17.17	67.65	-18.93	46.31
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	68.31	65.66	64.63	198.60	*	2.52
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	6.76	8.46	6.79	22.01	*	-7.48
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	-26.85	35.95	28.01	37.11	-14.35	-44.27
SALES OF ORDINARY LIFE INSURANCE	718.65	762.97	815.89	2297.50	38.15	57.81
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	176.62	204.00	202.76	583.38	*	0.97
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	57.71	57.90	57.75	173.37	*	-0.58
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	61.55	56.28	46.46	164.29	*	3.38
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	9.49	3.50	25.51	38.50	*	-7.18
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	33.40	29.82	26.32	89.53	*	11.77
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	15.98	14.89	17.15	48.01	*	-1.86
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	8.21	8.23	7.18	23.62	*	1.84

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION, INC., SALES OF ORDINARY LIFE INSURANCE;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Innovation in the Kentucky Workers' Compensation Program

by J.M. Carigan and John Stephen Harbison*

Workers' compensation is a statutory program that provides wage-replacement and medical expense benefits to workers who suffer work-related injuries and occupational diseases. In every state, the cost of these benefits is paid by employers through workers' compensation insurance or through a state fund based on a business tax. In Kentucky, the system is financed through both methods. A state fund, the Workers' Compensation Special Fund, hereafter referred to as the Fund, covers a percentage of each occupational disease and second-injury award. Employer-purchased insurance, with rates varying among industries and between firms, covers all other costs of the system.

Until the early 1970s, when the Kentucky legislature joined a national trend toward broader recognition of the costs of work injuries and occupational diseases, the benefits available to claimants and the protection costs paid by most Kentucky employers were considered modest. However, legislative changes in the benefits side of the program in the 1970s brought a roughly 60 percent cost increase. At the same time, some important court decisions regarding statutory benefit provisions and a jump in the number of claims produced an additional 30 percent cost increase.

Within the business community, the cost of the workers' compensation program was viewed as a serious impediment to Kentucky's economic growth. In an effort to reduce costs without slashing benefits, the 1982 General Assembly redesigned two important parts of the workers' compensation system. Senate Bill 274, now codified in Chapter 342 of the Kentucky Revised Statutes, introduced competitive pricing in the workers' compensation insurance market and made it possible to put the annual $60 million Workers' Compensation Special Fund on a pre-funded, rather than a pay-as-you-go, basis. The legislation reflects the hope that by restructuring the system: increasing competition in the workers' compensation insurance market and using insurance industry models for financing the Fund, costs can be reduced while benefit levels are preserved.

Competitive Pricing

Kentucky has been the first state to adopt competitive pricing for workers' compensation insurance. The sections of Senate Bill 274 dealing with insurance rating were based on a model rating act developed by the National Association of Insurance Commissioners (NAIC), even though the NAIC model does not apply to workers' compensation insurance. The draftsmen of Senate Bill 274 had to make several significant changes in the NAIC bill to extend its coverage to workers' compensation, an insurance line that is unique in many ways. Although the terms "competitive rating" or "competitive pricing" have now been widely accepted as shorthand descriptions of the concepts embodied in the NAIC model act, a more meaningful word is "anti-trust". The federal/state relationship in insurance regulation that lies in the background of Senate Bill 274 explains why.

In 1945, Congress enacted the McCarran-Ferguson Act, providing that the Sherman and Clayton Anti-trust Acts would apply to the insurance industry only in states that chose not to regulate the industry themselves. Soon, all the states had enacted more or less comprehensive regulatory schemes; most, including Kentucky, required approval of insurance rates by the state insurance commissioner prior to their use in the market. The McCarran-Ferguson Act thus nullified federal anti-trust legislation with respect to insurance industry practices. It did not require that the states enact effective anti-trust legislation.

Under Kentucky's prior approval law, the workers' compensation rates submitted to the insurance commissioner were set by a private, industry-controlled rating bureau that established one rate schedule applicable to every insurance company subscribing to its service. Every workers' compensation insurer doing business in Kentucky became a rating bureau subscriber. Although Kentucky's prior approval program allowed insurers to deviate from the bureau's rate filings, only a handful of rate deviations were ever submitted. By business custom, the industry became monolithic in its pricing practices. Had the Sherman Anti-trust Act been applied to the insurance industry, these practices would almost certainly have been illegal. Even the use of rates from a deviation filing would probably have been struck down since an agreement on price components is not easily distinguishable from an agreement on final prices. Under Kentucky's rate regulatory scheme however, which preempted federal anti-trust law, uniform pricing was lawful.

The insurance industry makes a credible argument that collective action is essential to the stability and security of the insurance market. The industry points out that unlike almost any other consumer product, the actual production cost of insurance is unknown until sometime after it has been priced and sold. As a result, the price of insurance is an estimate of the cost, based on actuarial assumptions. The assumptions are derived from trendable expense data: years of information on types of policyholders and their claims. In the workers' compensation market, the uncertainties of trending are magnified by the major role of legislatures and courts in setting benefit levels and thus dramatically affecting production costs.

*J. M. Carigan and John Stephen Harbison are members of the implementation group for Senate Bill 274. They are on the staff of the Kentucky Reinsurance Association.

The industry asserts that to assure consumers of market security, insurers have to pool and compare their expense experience (more data means better trend assumptions) and reach at least a general agreement on price levels. Because there is merit in the insurance industry's argument, Senate Bill 274 attempts to mix competitive pricing with some of the collective action that the industry claims it must be allowed to undertake. It does this by focusing on the activities of the rating bureaus.

Senate Bill 274 does not outlaw rating bureaus. They can continue to collect cost data from their subscribers and provide them with trend analyses and suggestions on certain components of final prices. Senate Bill 274 makes it unlawful for the bureaus to recommend final prices to subscribers; each insurer must submit a rate filing to the commissioner. In short, Senate Bill 274 incorporates the fundamental anti-trust principle that industry competitors should not be allowed to agree to charge the same price for their products, but preserves the aggregated industry loss data compiled by the rating bureaus. The bill accommodates the industry argument that the continued development of an actuarially sound data base is vital to market security, and truly competitive ratemaking. Yet, price recommendations made by the bureaus have to be confined to the analysis of loss data. Price recommendations based on other types of expense data, such as the administrative costs of handling claims, will be illegal.

What kind of impact will the anti-trust sections of Senate Bill 274 have on the workers' compensation market? First reports from insurers, and regulators are that price competition has been stimulated. Since July 15, 1982, sixty-seven insurers have filed rate deviations, with reductions in their rates ranging from 15 to 50 percent. It is far too soon to say how price competition will affect insurer stability and consumer security. The 1984 General Assembly would welcome an expert appraisal of the pricing effects of the bill and of the industry's effort to cope with the insecurities of competition.

The Special Fund

As mentioned above, Senate Bill 274 places the Workers' Compensation Special Fund on an accrual funding basis. Two types of claims are made against the Special Fund: work related injuries that are made more serious because of a prior medical condition of the injured worker, and occupational disease cases. With respect to the first category, the Fund pays the percentage of a workers' compensation award found to be due to the prior condition. In most occupational disease cases, the Fund pays a fixed percentage of workers' compensation awards; these percentages are set by state statute. For example, in a black lung case the Fund is liable for either 40 percent or 75 percent of an award, depending on the number of coal industry employers the disabled miner has had in his career.

Studies undertaken during the 1980-82 legislative interim revealed serious problems in the structure of the Special Fund. The Fund has historically been financed by a tax levied by the Department of Revenue on workers' compensation insurance companies. It was passed along as a surcharge on an employer's workers' compensation insurance policy. The surcharge was intended to provide only current year Fund cash demands on a pay-as-you-go basis, demands that have increased dramatically in the last few years. The average employer's surcharge rose from 5.45 percent of premium in 1977 to 21.31 percent in 1980.

Senate Bill 274 established the Kentucky Reinsurance Association as a nonprofit government corporation for the purpose of "reinsuring" or assuming the liabilities of the Special Fund. The Reinsurance Association subscribers are all insurance companies selling workers' compensation insurance in Kentucky and all Kentucky employers who are self-insured for workers' compensation. The Reinsurance Association will levy an assessment on its subscribers in order to obtain needed funds. The Reinsurance Association can use these assessments to set up reserves against its long-term liabilities and may invest them to generate additional income. On July 15, 1983, the Reinsurance Association will assume all of the Fund's new liabilities, either directly or through private reinsurer arrangements with the Reinsurance Association.

The new law requires an annual evaluation by the Secretary of Finance of the prospective costs of the Fund; a proposal from the Reinsurance Association for the assumption of the Fund's obligations, along with a proposed method for collecting the necessary funds from the membership of the Association; and an invitation to private reinsurers to submit competitive bids for new liabilities using the Association's proposal as a bench mark. The competitive bidding feature will serve either to reduce the reinsurance cost or to validate the cost level set by the Association. In any event, the presence of the Association will guarantee the transfer of the liabilities.

The term "reinsurance" typically means a second or subsequent transfer of risk. Under Senate Bill 274, initial transfer of the workers' compensation risk is from an employer to his insurance carrier; the second transfer of risk is in the assumption of a share of certain claims by the Special Fund; the third transfer of risk is the full assumption of the Fund's current and long-term obligations by the Reinsurance Association, which will assume the cash and reserve management responsibilities for those liabilities.

The way in which the Special Fund shares its obligation on an individual claim with the employer or his insurance company has been redesigned to maximize the investment income potential of the unpaid loss reserve. Instead of both the employer (or his insurance company) and the Fund bearing pro-rata shares of every bi-weekly benefit check for the duration of the award, each will share liability for the award on the basis of its probable duration. For example, actuarial figures tell us that the average black lung victim covered by the Kentucky law, disabled at age fifty-five, can expect to receive benefit checks for sixteen years. In the typical black lung case, 75 percent of the award is charged to the Fund. Senate Bill 274 provides that the employer, through his workers' compensation insurance program, will be liable for the first four years of the award or, 25 percent of the anticipated duration of the award. The Fund will be liable for the remainder of the award, a period likely to be twelve years according to the life expectancy data. The Fund's payout obligation is thereby moved to the "back end" of the award period. By deferral of the cash demand on the Fund, an undiminished reserve can be invested for the first few years after the award has been made.

Then the resulting funds will be used to pay out the award over the remaining years, while the reserve continues to earn investment income.

Unlike private reinsurance corporations, the Association can operate with a certain calculated amount of red ink. It will not have to match current year income with its total incurred liabilities arising in that same year. The fact that a large part of its income will develop from investment over the long period of a claimant's award will give it no cause for concern. The private reinsurer, faced with annual demands to maintain stockholder earning levels and the statutory minimums for policyholders' surplus, could not face this prospect with equanimity. In addition, the Association has neither the temptation nor the ability to disperse its investment earnings for any purpose other than the reduction of its obligations. Its reserves, dedicated to the cases that generate them, will compound investment income until they are drawn down.

In the long run, this reform should dramatically lower the Special Fund's cost. The current system of pay-as-you-go funding costs one dollar of surcharge revenue for every one dollar of benefits paid. If the claims are pre-funded, a typical year's cross-section of black lung cases could cost considerably less than one dollar of surcharge revenue to pay the average one dollar of deferred benefits. The investment income made possible through this arrangement could reduce the future cash needs of the Special Fund by as much as 70 percent. Pre-funding is a long-range solution to the problem of escalating costs, especially if the pre-July 15, 1983 liabilities of the Fund will continue to be handled on a pay-as-you-go basis. It will be several years before the investment potential of the Fund is maximized. If the Fund could be fully pre-funded today at a 10 percent per annum return, its investment income would be about $35 million per injury year.

Conclusion

Senate Bill 274, passed unanimously by both houses of the 1982 Kentucky legislature, reset two of the foundation stones of the Kentucky workers' compensation program: the Special Fund and insurance rate regulatory statutes. All who are involved with the system, as well as those concerned with the general health of Kentucky's economy, will watch these experiments with great interest in the coming years.

The Financial Status of Kentucky's Unemployment Insurance: 1983

by Charles W. Hultman*

The following article is based upon the author's report, Kentucky's Unemployment Insurance Program for the Eighties, *prepared for the Kentucky Cabinet for Human Resources, Division of Unemployment Insurance, June 1982.*

Kentucky, along with all other states, has maintained an unemployment insurance program (UI) since the late 1930s. Under this program, firms pay taxes based on part of their total payroll to a state trust fund. A qualified worker, when unemployed, is entitled to receive benefit payments from the trust fund for a specified time period and amount.

Firms pay different tax rates, depending upon their experience rating: their previous history of taxes paid into, and benefits paid out of, the UI trust fund. New firms pay a standard rate for three years but thereafter are subject to a rate that reflects their experience rating. In addition, all firms pay according to a schedule that is chosen to reflect the status of the UI system's reserve balance. A firm's change within a particular rate range, and the program's movement among rate schedules, are automatic.

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The differing rate schedule should allow relative stability in the trust fund balance over the years if the business cycles bring only gradual and modest changes in overall unemployment. But sudden and large unemployment increases can seriously reduce the fund balance, and prolonged high unemployment levels can even deplete the fund. States with depleted trust funds may borrow from the federal government, but now may be expected to pay interest in addition to their debt repayment.

Until recently Kentucky's UI trust fund has been considered financially sound; reserves built during prosperity were adequate to meet greatly increased benefit payments during recessions. Recently, however, serious financial difficulties have been encountered. During the 1980s, Kentucky's insured unemployment rates exceeded the national rates much of the time; during many months, Kentucky's rate has been among the highest in the nation. Also, legislated UI program changes increased benefit payments more than tax receipts and greatly expanded coverage. The impact of these changes was not fully recognized until it became apparent that the trust fund balance could be depleted. The magnitude of some of these changes is reflected in Table 1, which provides a basis for comparing certain economic variables in 1981 with those of 1970.

In 1981, worker benefit payments were $235 million and employer tax payments were $187 million, a deficit of $48 million. The deficit situation continued through 1982, during

TABLE 1

SELECTED VARIABLES PERTAINING TO KENTUCKY'S UNEMPLOYMENT INSURANCE PROGRAM, 1970-81*

	1970	1981	1981 as Percent of 1970
Number of Covered Employees	629,200	895,384	142.3%
Number of Covered Firms	27,277	61,364	225.0
Benefit Payments (annual)	$34.1 m	$235.0 m	689.1
Tax Revenue (annual)	$28.2 m	$186.6 m	661.7
Average Weekly Benefit Amount	$44.22	$101.33	229.1
Maximum Weekly Benefit Amount	$60.00	$140.00	233.3
Cost of Unemployment Benefits Per Percent of Unemployment	$10.6 m	$52.0 m	490.6

*Figures do not apply to reimbursable and public service employers.

SOURCE: Kentucky Economic Information System and Cabinet for Human Resources.

which time Kentucky and about 25 other states experienced depleted UI trust funds. High and extended levels of unemployment caused this situation because the system could not automatically nor sufficiently adjust. Kentucky borrowed $52 million from the federal government so it could continue to provide benefit payments to jobless workers. These developments caused the 1982 Kentucky General Assembly to introduce several significant changes in the state's UI program.

Major Legislative Changes

Many different points of view can exist within a general consensus that the state should have an adequate UI program. Workers directly affected by the program's benefits and rules are probably unaware that UI taxes are an important business cost. The business community, in contrast, fears that a UI program too generous in benefits and rules will necessitate higher taxes and that these could cause Kentucky firms to have a cost disadvantage in interstate competition. A UI program is more recession proof if it has an adequate trust fund balance, but building such a balance requires that in some years prior to a recession, UI tax rates must be higher than otherwise necessary. For these and other reasons, many forces influence the results of a legislative revision of a UI program.

Major changes resulting from the 1982 Kentucky unemployment legislation, generally retroactive to January 1, 1982, are summarized below:

1. The taxable wage base (TWB) was increased from $6,000 to $8,000 per covered worker. By doing this, Kentucky joins at least 19 other states with TWB over $6,000. However, most of the other states have a TWB in excess of $8,000.

2. The experience rating system was revised. In general, tax rates of firms whose tax contributions historically fall short of employee benefit payments attributable to them will be higher than previously.

3. When the UI trust fund balance exceeds $120 million, the maximum weekly benefit amount (MWBA) has been set at 55 percent of the state's average weekly wage of covered employees for the previous year. When it falls below $120 million, the MWBA is to be capped at the level of the MWBA of the preceding year. Currently this means that the MWBA is set at $140 and is likely to remain there for the next few years. Approximately 29 states have a higher MWBA and 20 states a lower one. Many with lower amounts are "Sunbelt" states.

4. The weekly benefit amount is changed from 1/23rd of base period wages in the quarter of the base year in which wages were highest, to 1.185 percent of total base year wages, but not less than $22.

5. An alteration was made in the trigger mechanism, whereby five tax schedules with varying tax-generating capacities are put into effect in accordance with changes in the trust fund balance. These are illustrated by Figure 1. Note that schedule A represents the lowest level of taxation and would be in effect under the best circumstances; schedule E is effective while the trust fund is below $150 million. Each employer's tax rate, within the schedule in effect at the time, will vary depending upon his firm's experience rating.

FIGURE 1

SCHEDULE OF UI TAX RATES

	Schedule				
	A	B	C	D	E
Minimum Rate	0.30%	0.40%	0.50%	0.60%	1.00%
Maximum Rate	9.00	9.25	9.50	9.75	10.00

6. The contribution rate of new employers with less than three years' experience is raised from 2.7 to 3.0 percent.

7. Under certain circumstances the liability of unemployment is charged to the last firm employing a worker for at least 30 days. This provision is consistent with the practice of only six other states.

8. Extended benefit payments may commence when the state's insured unemployment rate is 5 percent instead of 4 percent, and also is at least 20 percent higher than the average for the same 13-week period in the two previous years.

Other Considerations

The Kentucky General Assembly considered but did not adopt a proposal to reinstate the one-week waiting period for commencement of UI benefits. Kentucky and 10 other states (as of January 1, 1982) do not require the one-week waiting period.[1] Because of this the federal government does not pay for one-half of the first week of benefits in Kentucky's extended benefit program, as it would if there was a waiting period. Also, the General Assembly deleted, effective July 1, 1983, the provision permitting firms to make voluntary contributions to raise their individual reserve balance and thereby reduce their tax rate in the following year. About one-half of the states permit these voluntary contributions.

A popular complaint is that high UI taxes discourage new firms from locating in Kentucky and may even cause some existing firms to leave. There are, however, several important reasons to believe that the industrial location effects of UI taxes are perhaps exaggerated. For example, a recent study for the national Council of State Planning Agencies concluded that for most industries the level of business taxation has no detectable effect on investment patterns; when some effect is evident, it is quite small.[2]

Also, Kentucky is not the only state with UI taxes or with a need to raise rates because of the 1980-83 national recession. The Kentucky UI program is essentially the same as in other states; therefore, a firm's UI tax costs should not differ by much between states, provided unemployment is similarly experienced. Over the last several decades, Kentucky's insured unemployment rate has generally been below the national average, suggesting less-than-average need for UI taxes. Also, the UI tax is only one of many taxes firms pay, and Kentucky does not place an unusual total tax burden on business firms.

Evaluation of the New UI Program

The 1982 legislation that finally emerged in Kentucky represents a compromise solution between business and labor, between specific types of industries (e.g., seasonal and cyclical industries vs. the stable industries), and even, in part, between low and high wage employees. Whether or not this revised UI program will prove satisfactory during the next several years depends not so much upon the specific nature of the new provisions but on the well-being of the state economy and the related level of unemployment and employment.

The financial viability of the Kentucky UI program was weakened during 1980, 1981, and 1982 as the insured rate of unemployment remained near the 5 percent rate and as total unemployment approached a record high (11.7 percent, unadjusted, for December 1982). The result was both a larger outflow of benefits from the fund and a smaller tax inflow as fewer people were employed and as the tax base failed to increase significantly. Generally, the legislative action moved the program in the direction of a more sound structure, especially because of such provisions as the cap on MWBA when the trust fund balance is low, the increased taxable wage base, and the higher tax rates. This is partially offset, however, by the provision for a potentially large increase in benefit payments when the fund balance increases above $120 million.

The new set of tax rates, combined with a higher taxable wage base, appears to be capable of generating a substantial amount of revenue. For example, the highest tax schedule (E) provided approximately $235 million in 1982. This amount will rise as aggregate taxable wages increase with economic recovery. The lowest tax rate schedule (A) will provide about $185 million in revenue–almost as much as the highest tax schedule under old legislation.

The new system fails to provide for accumulation of a large trust fund balance for use during recession. Instead, the several tax rate schedules have larger and faster revenue generating capacities. During a serious recession, the fund balance on hand may be relatively less than before, necessitating larger tax increases to replenish the fund balance. If this happens, many firms will face heavier UI tax burdens at the time when their profits will be reduced by the recession.

Anticipated Fund Status

As the Kentucky economy moved toward the end of 1982, it became clear that the trust fund position had deteriorated during the year. Tax receipts had amounted to about $235 million and benefit payments about $340 million. Unless economic conditions improve substantially, to the extent that the insured unemployment rate falls below 4.5 or 5.0 percent, Kentucky's trust fund position could deteriorate again in 1983.

The rate at which the economy recovers is difficult to predict, but the short term outlook is not particularly optimistic. For example, Wharton Econometric Forecasting Associates (January 24, 1983) projected the *total* national unemployment rate for 1982, 1983, and 1984 to be 9.7, 10.6, and 9.5 percent, respectively. This suggests that Kentucky's *insured* unemployment rate could be at least as high in 1983 as in 1982, causing continued excess of benefit payments over tax receipts. Schedule E, the highest of the five tax rate schedules, is to be utilized until the fund balance reaches $150 million, and so may be in effect for several years.

Early, significant, and continued economic improvement could strengthen the fund's financial position within a short period of time. An insured unemployment rate of less than 3.5 percent, for example, would cause benefit payments to decline to less than $175 million annually. Employer contributions would increase gradually but substantially each year as payrolls expanded. Starting with tax receipts of $235 million in 1982, a significantly improved economy could mean that the trust fund could be replenished by the mid-1980s.

Ultimately, decisions regarding changes in the nature of Kentucky's UI program are left to the Kentucky General Assembly. Unless the unemployment situation improves, the General Assembly's options include two basic alternatives: increase employer tax payments, reduce benefit payments, or both. Each alternative, in turn, involves several possibilities. Employer tax payments can be increased by raising the tax rates, the taxable wage base, or both. In addition, tax rates can be increased selectively or across the board. Reducing the aggregate benefit payments also involves several options–such as reducing the maximum weekly benefit amount, reinstating the one-week waiting period, or employing more restrictive eligibility requirements.

Footnotes

[1] Much of the following material is drawn from U.S. Department of Labor, *Comparison of State Unemployment Insurance Laws*, January 3, 1982.

[2] Michael Kieschnick, *Taxes and Growth: Business Incentives and Economic Development*, Washington, Council of State Planning Agencies. For a description of other studies, see Charles W. Hultman, *Kentucky's Unemployment Insurance (A Review of the 1970s and Expectations for the 1980s)*, College of Business and Economics, University of Kentucky, November 1981, pp. 16-17.

* * *

(continued from page 2)

tables produced as output from this program currently includes 58 tables with annual data, 20 tables with quarterly data, and 14 tables with monthly data. Additional tables are gradually being added to this program, with the ultimate intention of including most of the KEIS state-level data series on one or the other of the tables.

One of the tables from Program TABLE is reprinted on page 16 of this issue. While providing an example of the program's output, it gives our readers the current estimates for Kentucky personal income, 2nd quarter 1981 through 3rd quarter 1982, the most recently released periods.

The expansion of the annual state-level databank to include Kentucky data from the *Survey of Governmental Finances* (Bureau of the Census, U.S. Department of Commerce) has now been completed and these data are accessible in the ABANK. In addition, the major expansion of the county database (CBANK) announced in this column in December has also been completed. One hundred twenty-eight series are available, most dating from 1965 to the present, for each of the 120 Kentucky counties, the 15 Area Development Districts, and for Appalachian Kentucky. Comparable series for the state and nation are also included in the CBANK to allow for comparative analysis. The full list of the CBANK data series follows below. For further information, please contact KCEA staff.

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KEIS COUNTY DATABASE (CBANK) ANNUAL DATA SERIES

NO.	SERIES DESCRIPTION
1	INCOME, TOTAL PERSONAL (BY PLACE OF RESIDENCE)
2	INCOME, PER CAPITA PERSONAL
3	INCOME, REAL PERSONAL, IN 1972 DOLLARS
4	INCOME, REAL PER CAPITA PERSONAL, IN 1972 DOLLARS
5	INCOME, TOTAL WAGE AND SALARY
6	INCOME, OTHER LABOR
7	INCOME, PROPRIETORS
8	INCOME, FARM PROPRIETORS
9	INCOME, NONFARM PROPRIETORS
10	INCOME, LABOR AND PROPRIETORS, FARM
11	INCOME, LABOR AND PROPRIETORS, NONFARM
12	INCOME, LABOR AND PROPRIETORS, PRIVATE NONFARM
13	INCOME, LABOR & PROPRIETORS, AG. SER., FOR. & OTH
14	INCOME, LABOR & PROPRIETORS, MINING
15	INCOME, LABOR & PROPRIETORS, CONTRACT CONSTRUCTION
16	INCOME, LABOR & PROPRIETORS, MANUFACTURING
17	INCOME, LABOR & PROPRIETORS, MANUF. NON-DURABLES
18	INCOME, LABOR & PROPRIETORS, MANUF. DURABLES
19	INCOME, LABOR & PROPRIETORS, TRANS.COMM.& PUB UTIL
20	INCOME, LABOR & PROPRIETORS, WHOLESALE TRADE
21	INCOME, LABOR & PROPRIETORS, RETAIL TRADE
22	INCOME, LABOR & PROPRIETORS, FINANCE, INS, REAL EST
23	INCOME, LABOR & PROPRIETORS, SERVICES
24	INCOME, LABOR & PROPRIETORS, GOVERNMENT
25	INCOME, LABOR & PROPRIETORS, FEDERAL CIVILIAN
26	INCOME, LABOR & PROPRIETORS, FEDERAL MILITARY
27	INCOME, LABOR & PROPRIETORS, STATE & LOCAL
28	INCOME, TOTAL LABOR & PROPRIETORS BY PLACE OF WORK
29	INCOME, PERSONAL CONTRIBUTIONS FOR SOCIAL INSURANCE
30	INCOME, NET LABOR & PROPRIETORS BY PLACE OF WORK
31	INCOME, RESIDENCE ADJUSTMENT
32	INCOME, NET LABOR AND PROPRIETORS BY PLACE OF RESIDENCE
33	INCOME, DIVIDENDS, INTEREST, AND RENT
34	INCOME, TRANSFER PAYMENTS
35	INCOME, TRANS PAY, TOTAL GOVT PAY TO INDIV CIVILIANS
36	TRANS PAY: CIV RETIRE, DISABILITY & HEALTH INS PAY
37	TRANS PAY: SOC SEC RETIRE. & DISABILITY (OASDI)
38	TRANS PAY: RAILROAD RETIREMENT AND DISABILITY
39	TRANS PAY: FEDERAL GOVERNMENT EMPLOYEE RETIREMENT PAY
40	TRANS PAY: STATE & LOCAL GOV EMPLOY RETIREMENT PAY
41	TRANS PAY: MEDICAL INSURANCE PAYMENTS
42	TRANS PAY: WORKMEN'S COMPENSATION PAYMENTS
43	TRANS PAY: BLACK LUNG BENEFIT PAYMENTS
44	TRANS PAY: OTHER GOVT DISAB INSUR & RETIRE PAY
45	TRANS PAY: UNEMPLOYMENT INSURANCE PAYMENTS
46	TRANS PAY: EDUCATIONAL & TRAINING ASSISTANCE PAYMENTS
47	TRANS PAY: INCOME MAINTENANCE PAYMENTS
48	TRANS PAY: SUP SEC INC(PRE 74:AID TO AGD,BLND & DISA)
49	TRANS PAY: AID TO FAMILIES W/DEPENDENT CHILDREN(AFDC)
50	TRANS PAY: FOOD STAMPS-BONUS VAL.61-78,FACE VAL.79 FWD
51	TRANS PAY: OTHER ASSISTANCE PAYMENTS
52	TRANS PAY: OTHER, TO INDIVID CIVILIANS
53	TRANS PAY: MILITARY RETIREMENT & VETERANS BENEFITS
54	TRANS PAY: MIL PENSIONS,RETIRE,TERM LVE,MUSTERING OUT
55	TRANS PAY: EDUCAT. PAY. TO VETERANS, DEPENDENTS&SURV.
56	TRANS PAY: OTHER GOVT PAY TO VETS,POW'S & SURV OF VETS
57	TRANS PAY: PAYMENTS TO NONPROFIT INSTITUTIONS
58	TRANS PAY: BUSINESS TRANSFER PAYMENTS
65	CASH RECEIPTS, FROM FARM MARKETINGS, TOTAL
66	CASH RECEIPTS, TOTAL LIVESTOCK AND PRODUCTS
67	CASH RECEIPTS, MEAT ANIMALS AND OTHER LIVESTOCK
68	CASH RECEIPTS, DAIRY PRODUCTS
69	CASH RECEIPTS, POULTRY AND POULTRY PRODUCTS
70	CASH RECEIPTS, TOTAL CROPS
71	CASH RECEIPTS, TRUCK CROPS AND MELONS
72	CASH RECEIPTS, FRUITS, NUTS, AND BERRIES
73	CASH RECEIPTS, GREENHOUSE AND NURSERY PRODUCTS
74	CASH RECEIPTS, FOREST PRODUCTS
75	CASH RECEIPTS, ALL OTHER CROPS
76	OTHER FARM INCOME, TOTAL
77	OTHER FARM INCOME, GOVERNMENT PAYMENTS
78	OTHER FARM INCOME, IMPUTED INCOME AND RENT RECEIVED
79	FARM PRODUCTION EXPENSES, TOTAL
80	FARM PROD EXP, FEED PURCHASED
81	FARM PROD EXP, LIVESTOCK PURCHASED
82	FARM PROD EXP, SEED PURCHASED
83	FARM PROD EXP, FERTILIZER AND LIME PURCHASED
84	FARM PROD EXP, PETROLEUM PRODUCTS PURCHASED
85	FARM PROD EXP, HIRED LABOR EXCL CONTRACT LABOR
86	FARM PROD EXP, CONTRACT LABOR,MACHINE HIRE+CUSTOM WK
87	FARM PROD EXP, ALL OTHER
88	VALUE OF INVENTORY CHANGE, TOTAL
89	VALUE OF INVENTORY CHANGE, LIVESTOCK
90	VALUE OF INVENTORY CHANGE, CROPS
91	TOTAL CASH RECEIPTS AND OTHER INCOME (#65 + #76)
92	REALIZED NET FARM INCOME (#91 - #79)
93	TOTAL NET INCOME INCL. CORPORATE FARMS (#92 + #88)
94	INCOME, CORPORATE FARMS, TOTAL
95	INCOME, STATISTICAL ADJUSTMENT FOR FARM INCOME
96	INCOME, NET FARM PROPRIETORS (#93 - #94 + #95)
97	INCOME, FARM WAGES AND PERQUISITES
98	INCOME, FARM OTHER LABOR INCOME
99	INCOME, TOTAL FARM LABOR & PROPRIETORS (#96+#97+#98)
100	TOTAL CIVILIAN LABOR FORCE
101	LABOR FORCE PARTICIPATION RATE
102	EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE
103	TOTAL UNEMPLOYMENT,BY PLACE OF RESIDENCE
104	UNEMPLOYMENT RATE
110	EMPLOYMENT, BY PLACE OF WORK,TOTAL(FULL & PART-TIME)
111	EMPLOYMENT, PROPRIETORS
112	EMPLOYMENT, FARM PROPRIETORS
113	EMPLOYMENT, NONFARM PROPRIETORS
114	EMPLOYMENT, TOTAL WAGE AND SALARY
116	EMPLOYMENT, WAGE AND SALARY, NONFARM
117	EMPLOYMENT, WAGE AND SALARY, PRIVATE NONFARM
118	EMPLOYMENT, WAGE AND SALARY, AG SER,FOR,FISH,& OTHER
119	EMPLOYMENT, WAGE AND SALARY, MINING
120	EMPLOYMENT, WAGE AND SALARY, CONTRACT CONSTRUCTION
121	EMPLOYMENT, WAGE AND SALARY, MANUFACTURING
122	EMPLOYMENT, WAGE AND SALARY, MANUF. NON-DURABLES
123	EMPLOYMENT, WAGE AND SALARY, MANUF. DURABLES
124	EMPLOYMENT, WAGE AND SALARY, TRANS.COMM,& PUB UTIL
125	EMPLOYMENT, WAGE AND SALARY, WHOLESALE TRADE
126	EMPLOYMENT, WAGE AND SALARY, RETAIL TRADE
127	EMPLOYMENT, WAGE AND SALARY, FINANCE, INS, REAL EST
128	EMPLOYMENT, WAGE AND SALARY, SERVICES
129	EMPLOYMENT, WAGE AND SALARY, GOVERNMENT
130	EMPLOYMENT, WAGE AND SALARY, FEDERAL CIVILIAN
131	EMPLOYMENT, WAGE AND SALARY, FEDERAL MILITARY
132	EMPLOYMENT, WAGE AND SALARY, STATE AND LOCAL
140	POPULATION, TOTAL AS OF JULY 1 (EXCEPT CENSAL YEARS)
141	POPULATION, AGE 16 & OVER
165	COAL PRODUCTION (SHIPMENTS), TOTAL
166	COAL PRODUCTION, UNDERGROUND MINES
167	COAL PRODUCTION, SURFACE MINES
168	AVERAGE VALUE PER TON FOR COAL, F.O.B. MINES
169	VALUE OF TOTAL OUTPUT, COAL MINES
175	MOTOR VEHICLE REGISTRATIONS, PASSENGER CARS

KENTUCKY ECONOMIC INFORMATION SYSTEM

STANDARDIZED TABLE 201

KENTUCKY QUARTERLY ECONOMIC DATABANK

KENTUCKY PERSONAL INCOME: SUMMARY, BY QUARTERS

SERIES		QU 3,1981	QU 4,1981	QU 1,1982	QU 2,1982	QU 3,1982
1	INCOME, TOTAL KENTUCKY PERSONAL,BY PLACE OF RESIDENCE	31533.00	31898.00	32129.00	31954.00	32540.00
2	INCOME, REAL KENTUCKY PERSONAL, IN 1972 DOLLARS	16055.50	15964.96	15889.71	15663.72	15666.82
10	INCOME, NONFARM PERSONAL, TOTAL (Y$-YAG$)	30162.00	30633.00	31288.00	31163.00	31519.00
11	INCOME, FARM PERSONAL, TOTAL	1372.00	1265.00	841.00	792.00	1021.00
5	INCOME, WAGE & SALARY DISBURSEMENT, TOTAL, BY PLACE OF WORK	18379.00	18635.00	19217.00	18765.00	18700.00
6	INCOME, OTHER LABOR, BY PLACE OF WORK	2046.00	2091.00	2211.00	2171.00	2197.00
7	INCOME, PROPRIETORS, BY PLACE OF WORK (RESIDENCE)	2503.00	2384.00	1938.00	1868.00	2087.00
8	INCOME, PROPRIETORS, FARM	1234.00	1123.00	696.00	643.00	869.00
9	INCOME, PROPRIETORS, NONFARM	1269.00	1261.00	1241.00	1225.00	1218.00
12	EARNINGS, TOTAL, NONFARM, TOTAL	21556.00	21845.00	22524.00	22012.00	21964.00
13	EARNINGS, TOTAL, NONFARM, PRIVATE	17975.00	18048.00	18645.00	18118.00	18121.00
14	EARNINGS, TOTAL, AG. SERV., FORESTRY, FISHERIES, & OTHER	73.00	76.00	77.00	78.00	81.00
15	EARNINGS, TOTAL, MINING (SIC 10-14)	1911.00	2004.00	2059.00	1974.00	1906.00
16	EARNINGS, TOTAL, CONTRACT CONSTRUCTION (SIC 15-17)	1116.00	1159.00	1230.00	1121.00	1069.00
17	EARNINGS, TOTAL, MANUFACTURING, TOTAL	5901.00	5737.00	6074.00	5774.00	5843.00
18	EARNINGS, TOTAL, MANUFACTURING, NONDURABLE GOODS	2378.00	2361.00	2497.00	2390.00	2449.00
19	EARNINGS, TOTAL, MANUFACTURING, DURABLE GOODS	3524.00	3376.00	3577.00	3384.00	3394.00
20	EARNINGS, TOTAL, TRANS., COMM., & PUB UTIL (SIC40-49)	1765.00	1772.00	1792.00	1774.00	1762.00
21	EARNINGS, TOTAL, WHOLESALE & RETAIL TRADE (SIC 50-59)	3253.00	3269.00	3306.00	3287.00	3280.00
22	EARNINGS, TOTAL, WHOLESALE TRADE (SIC 50-51)	1214.00	1235.00	1252.00	1257.00	1258.00
23	EARNINGS, TOTAL, RETAIL TRADE (SIC 52-59)	2039.00	2034.00	2054.00	2030.00	2022.00
24	EARNINGS, TOTAL, FIN., INS., & REAL ESTATE (SIC 60-67)	892.00	897.00	918.00	927.00	952.00
25	EARNINGS, TOTAL, SERVICES (SIC 70-89)	3043.00	3135.00	3191.00	3184.00	3227.00
26	EARNINGS, TOTAL, GOVERNMENT, TOTAL	3582.00	3797.00	3879.00	3894.00	3843.00
27	EARNINGS, TOTAL, GOVERNMENT, FEDERAL CIVILIAN	770.00	824.00	832.00	821.00	648.00
28	EARNINGS, TOTAL, GOVERNMENT, FEDERAL MILITARY	527.00	623.00	633.00	640.00	654.00
29	EARNINGS, TOTAL, GOVERNMENT, STATE & LOCAL	2285.00	2351.00	2414.00	2434.00	2340.00
30	EARNINGS, TOTAL, GOVERNMENT, TOTAL CIVILIAN	3055.00	3175.00	3246.00	3255.00	3188.00
31	INCOME, TOTAL EARNINGS BY PLACE OF WORK	22928.00	23110.00	23366.00	22804.00	22985.00
32	PERSONAL CONTRIBUTIONS TO SOCIAL INSURANCE, BY PLACE OF WORK	1320.00	1322.00	1406.00	1361.00	1361.00
33	INCOME, LABOR & PROPRIETORS, NET, BY PLACE OF WORK	21609.00	21788.00	21960.00	21443.00	21623.00
34	ADJUSTMENT FOR RESIDENCE, KENTUCKY PERSONAL INCOME	162.00	118.00	72.00	119.00	121.00
35	INCOME, NET EARNINGS, BY PLACE OF RESIDENCE	21770.00	21906.00	22031.00	21562.00	21744.00
36	INCOME, PROPERTY: DIVIDENDS, INTEREST, RENTS & ROYALTIES, TOTAL	4594.00	4721.00	4811.00	4937.00	5049.00
37	INCOME, TRANSFER PAYMENTS, TOTAL	5170.00	5272.00	5286.00	5455.00	5747.00
38	INCOME, TRANSFER PAYMENTS, STATE U.I. BENEFITS	214.00	266.00	252.00	327.00	420.00

UNITS: MILLIONS OF CURRENT DOLLARS

SOURCE: U.S. BUREAU OF ECONOMIC ANALYSIS

NOTE: ALL SERIES SEASONALLY ADJUSTED AT ANNUAL RATE.

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June 1983
Vol. 7, No. 2

KCEA Review and Forecast

by Charles W. Hultman*

The consensus among national economic forecasters is that the U.S. economy is finally emerging from the longest and most severe recession of the post World War II period. Although there are concerns that the size of the federal deficit poses problems relating to expansion in the private sector because of effects on interest rates, inflation appears currently to be under control and the outlook for gradual sustained recovery seems promising. The 1.1 percent increase from March to April 1983 in the Composite Index of Leading Indicators, the tenth consecutive month of increases, reinforces this optimism.

Of particular interest at this time is the general nature of the recovery. Which sectors of the national economy will be affected most directly and immediately? And, what are the implications for Kentucky?

According to the Data Resources, Inc. (DRI) June 1983 forecast, the expansion will be induced particularly by the growth in housing construction and in consumer spending. New housing starts have increased since late 1981 and are about double the level of the final quarter of that year. Consumer expenditures are also increasing, with major growth expected in automobiles, furniture and appliances, and other durable equipment. As a result, DRI expects real GNP to rise 2.8 percent in 1983 and 4.8 percent in 1984. Real disposable income is expected to rise 3.0 percent in 1983 and 4.8 percent in 1984 as a result of the expansion in GNP and the mid-1983 tax cut. However, mortgage rates are expected to remain above 12 percent and the prime rate above 10 percent, which rates are high especially when compared with the low current rate of inflation. Industrial production is expected to rise 2.3 percent in 1983 and 7.5 percent in 1984. The major expected growth industries include defense equipment, lumber and wood products, mobile homes, automobiles, household appliances, and basic steel and mill products.

Nationally, the unemployment rate declined in May 1983 to 10.1 percent, seasonally adjusted. DRI expects the average rate to be about 9.8 percent in 1983 and 8.8 percent in 1984. Part of the unemployment rate improvement will occur because growth in the number of new labor force participants will be somewhat less than in previous years because of basic changes occurring in the age distribution of the population. This trend in age distribution should continue throughout the 1980s and make full employment less difficult to achieve.

It is perhaps too early to identify signs of economic recovery from available Kentucky data because the expansion currently underway is partly seasonal in nature. As shown on page 9, the unadjusted Kentucky monthly unemployment rate for March was 11.7 percent, the lowest since November 1982. In addition, and unfortunately, the seasonally adjusted Kentucky monthly unemployment rates, 10.3 percent for January, 10.5 percent for February, and 10.9 percent for March suggest some deterioration in the Kentucky employment situation, since the Kentucky adjusted unemployment rate remains above the national adjusted rate for the comparable period. The recent improvement in the unadjusted unemployment rate seems therefore to reflect normal seasonal expansion rather than cyclical improvement. The state's unadjusted weekly *insured* unemployment rate, however, continued to decline to about 5.0 percent in mid-May from a high of 7 to 8 percent in early 1983, although this decrease could reflect the exhaustion of unemployment insurance benefits by persons who remain unemployed.

Residential construction has shown signs of strong recovery, although in varying degrees in different parts of the state; employment in the contract construction industry was about 6 percent higher during the first quarter of 1983 than during the first quarter of 1982. Generally, however, employment growth by industries has been mixed, with total employment during the first quarter of 1983 slightly below the first quarter of 1982. Durable goods production, which has yet to show significant recovery, can be expected to increase as growth continues in other industrial sectors and regions of the nation.

(continued on page 7)

**Charles W. Hultman is Chairman of the KCEA and Associate Dean for Research and Extension, College of Business and Economics, University of Kentucky.*

The ninth annual meeting of the Kentucky Economic Association will be held on Friday, September 30, 1983 at the Executive Inn East, Louisville, Kentucky. This year's meeting will include four sessions of paper presentations, followed by two panel discussions. One panel will consider the financing of government, while the other will be oriented toward the subject of teaching undergraduate economics. Tentative arrangements have been made with the two major party Kentucky gubernatorial candidates for them to give the luncheon address and to speak regarding their plans for economic development for Kentucky.

Participating in the afternoon forecasting session will be Christopher Caton of Data Resources, Inc. (DRI), Professor Charles W. Hultman, Chairman of the Kentucky Council of Economic Advisors, and Professor James Fackler, Department of Economics, University of Kentucky. The annual business meeting will conclude the day's activities.

Professor Clyde Bates, this year's KEA President-Elect, is responsible for the program and expects to be mailing the conference brochure in early August. Anyone wishing further information may contact Professor Bates at the Department of Economics, Georgetown College, Georgetown, Kentucky 40324, phone: 502-863-7284.

* * *

The Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce has recently released 1981 county-level preliminary estimates of personal income, by source; disaggregated transfer payments; farm income and expenditures; and employment (full and part-time), by place of work. At the same time, estimates for these series, 1977-80, have been revised and replace earlier estimates. Estimates for these series, 1965-68, where available, have also been revised. All of these newly estimated data are accessible in the county databank (CBANK) of the Kentucky Economic Information System (KEIS). In addition, BEA has released 1982 state-level preliminary estimates of personal income and per capita personal income, together with revisions in these data for 1978-81. They are accessible in the KEIS annual databank (ABANK).

* * *

Professor Joseph Krislov, Department of Economics, University of Kentucky, has just completed a study, with the support of the Center for Labor Education and Research, University of Kentucky, entitled "Explaining Kentucky's Strike Pattern." This study will be published by the KCEA as a forthcoming monograph in the *Studies in Applied Economic Research* Series. Persons wishing to receive a copy of this study should send a ***written*** request to the KCEA office, 451 Commerce Building, University of Kentucky, Lexington, Kentucky 40506–0034. This study, as all publications of the KCEA, will be distributed free of charge to persons in government, academia, and the non-profit sector. There will be a charge of $5.00 per copy to all others.

* * *

(continued on page 7)

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This publication provides current information concerning the Kentucky economy. It is a forum for the publication of short expository articles, analyses of some aspect of the Kentucky economy, forecasts of the Kentucky economy, and tables of selected data chosen as indicators of developments in the Kentucky and national economies. The publication also sometimes includes information about enhancements to the Kentucky Economic Information System (KEIS) and articles dealing with information systems in general.

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Kentucky Recessions as Reflected in Employment and Unemployment Data

Don M. Soule and Frances E. Ross*

Two recent studies have concerned the apparent weakening, in recent years, of the Kentucky economy as compared with the national economy.[1] These studies mainly examined employment changes as a means of explaining income changes and found that Kentucky has experienced less than the national rate of income growth since about 1977-78 and has suffered an employment decline to a greater degree than the national average in the two recessions that began January 1980 and July 1981. Because recession effects may differ among types of economic series and between state and national series, additional light is shed on the nature of Kentucky's economic performance by examining several work-related economic series and by defining the time scope more broadly to include all or most of the national recessions since the end of World War II.

Two main questions are addressed in this brief study: has the Kentucky economy declined, during the several postwar recessions, to a greater or lesser degree than the national economy; and how has the Kentucky economy performed relative to the national economy in the last five years? Four monthly economic series are selected for analysis: two concerning employment (number of workers, and average weekly hours in manufacturing) and two concerning unemployment (total unemployment rate, and average weekly number of initial claims filed for unemployment insurance benefits). State-level income series, while very useful, are not estimated monthly and therefore are excluded from this analysis.

The analysis of changes during recessions concerns Kentucky's experience relative to the nation's in the *percentage rate of decline* of the four economic series. Percentage decline is selected as the measure of recession severity not only because recessions have to do with economic declines but also because percentages allow easy and relevant comparison among four diverse economic series for a state and a nation. The dates of recession peaks and troughs differ not only among economic series but also among states for particular series. To accommodate these time differences, the four series are analyzed for a period extending six months both before and after the peaks and troughs identified for recessions in the national economy. A greater degree of worsening during a recession is interpreted as an unfavorable change for Kentucky relative to the nation.

Percentage decline, as a measure of worsening during a recession, differs from another commonly used measure of economic well-being which concerns the relative *levels* of economic measures for Kentucky and the nation. Kentucky's rates of total unemployment, for example, were favorable to the national rates almost always in the period 1970-79 when in many respects the Kentucky economy showed much improvement. But Kentucky's rates were unfavorable to the national rates almost always in the periods 1961-69 and 1980 to present. (Insured unemployment rates had nearly the same pattern.) Both of these methods for measuring economic well-being are valid and meaningful. This particular study concerns degrees of decline during seven postwar recessions and also concerns changes in the relative levels of Kentucky and the nation in the longer period since January 1978.

Selecting the Economic Series

The employment situation is not adequately pictured by a single series showing only the number of persons employed, because both part-time and full-time workers are counted equally. This deficiency can be reduced by examining an additional series (average weekly hours of work by production workers in manufacturing) which reflects differences between part-time and full-time workers. Problems are also encountered in unemployment statistics. Viewed superficially, the terms employed and unemployed seem to be opposites and suggest that an increase in number of persons unemployed means also a decrease in number of persons employed, and vice versa. This is not true, however.

The working-age population is divided into two main groups: persons desiring to work and persons not desiring to work. "Persons desiring to work" is a group designated as the labor force. (The labor force is estimated monthly, based upon the Current Population Survey conducted by the U.S. Bureau of the Census. The labor force estimate includes persons who are working at the time of the survey, including self-employed persons, persons who have indicated their desire to work by having registered at a public or private employment agency, and persons who respond that they desire to work.) The labor force is further divided into the employed and the unemployed. The unemployment rate is the number of persons unemployed (not working but desiring to work) expressed as a percentage of the labor force (persons working or desiring to work). A person not desiring to work is excluded from the labor force and is counted neither as employed nor unemployed.

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Large month-to-month changes occur between persons desiring to work and persons not desiring to work. The unemployment rate's usefulness as a measure of the unemployment problem is reduced because of the shifting composition of the labor force. But the deficiency can be reduced by examining an additional measure of unemployment: number of initial claims filed for unemployment insurance (UI) benefits. This series is an actual count and does not rely on a labor force estimate. Workers almost always file UI claims very soon after losing their jobs because filing a claim is the necessary first step toward receiving UI benefits. Studied together, data on number of persons employed (by place of work), average weekly hours worked (in manufacturing), unemployment rate, and number of initial claims for UI benefits broadly describe the employment-unemployment situation, both in regard to the turning points of recessions and the longer run performance of the economy.

Preparing the Data

The four series are presented in a form to allow easy and meaningful comparison of Kentucky and the nation. All series are adjusted to remove the effects of seasonal variation, and the two unemployment series are inverted in the figures so that all four series are consistent in showing worsening as a downward movement and improvement as an upward movement. Because the employment and the initial claims series are of much different magnitudes for Kentucky and the nation, the data values in these two series have been converted to index numbers based on the middle month of the five-year period (July 1980 equals 100).

Peaks and troughs of total national economic activity are identified by the National Bureau of Economic Research (NBER) and mark the beginning and ending months of recessions.[2] For purposes of analyzing economic changes during seven post-World War II recessions (the 1948-49 recession is omitted for lack of adequate data), study periods are established for each recession as extending from six months before the NBER designated peak to six months after the trough. These broader study periods accommodate different dates for the peaks and troughs for state and national data and for the different economic series. Within each study period, the actual peaks and troughs are identified and percentage declines are calculated. The percentage declines, from actual peak to actual trough, for each of the four economic series, for Kentucky and the nation, and for the seven postwar recessions, are summarized in Table 1.

Kentucky's Recession Performance

Kentucky exceeded the nation in percentage decline (degree of worsening) almost without exception, for all seven

TABLE 1

PERCENTAGE DECLINES DURING SEVEN RECESSIONS, KENTUCKY AND UNITED STATES

	Percentage Change from Peak to Trough[1]							
	Employment		Average Weekly Hours		Unemployment Rate[2]		Initial UI Claims	
Recessions	Ky.	U.S.	Ky.	U.S.	Ky.	U.S.	Ky.	U.S.
1953-54	-9.0	-3.5	-8.3	-4.1	–	–	-124.3	-84.0
1957-58	-6.9	-4.3	-2.6	-4.5	–	–	-141.3	-100.0
1959-61	-3.0	-2.2	-6.3	-5.2	–	–	-40.9	-58.3
1969-71[3]	+3.3	-1.5	-9.7	-3.4	-34.2	-74.3	-81.1	-68.7
1973-75	-3.1	-2.9	-5.7	-4.7	-142.9	-95.7	-159.4	-131.0
1979-80	-5.9	-1.4	-4.5	-3.7	-69.1	-36.8	-95.4	-63.4
1981-82	-5.8	-3.1	-7.6	-6.9	-60.0	-50.0	-96.5	-69.9

[1] Definitions of the series are as follows: employment–total nonagricultural wage and salary workers; average weekly hours–manufacturing production workers; unemployment rate–percent of total civilian labor force; initial UI claims–total of state programs. To achieve compatibility with the employment and weekly hours series, the two unemployment series are analyzed as if they were plotted on a chart with the vertical scale inverted. In the 1979-80 period, the Kentucky weekly hours series changed by -4.5 percent (from 39.5 to 37.7 average hours), while the Kentucky unemployment rate changed by +69.1 percent (from 5.5 to 9.3 percent rate). Because the changes in both series indicate worsening of the economy, both are shown in the table as negative percentage changes. Likewise, an increase in initial UI claims indicates a worsening and is labeled as a negative percentage change.

[2] Comparable monthly unemployment rates are not available for Kentucky for the first three recessions studied.

[3] Because of Kentucky's unusual growth, the 1969-71 peak and trough for the employment series are those designated by the NBER for the entire national economy instead of the actual peak and trough for that particular series.

SOURCE: Data in this table and in Figures 1-4 are from the Kentucky Economic Information System. Original sources are Kentucky Cabinet for Human Resources and U.S. Department of Labor, Bureau of Labor Statistics (through Citibase). Kentucky data were seasonally adjusted using Program X-11.

recessions and all four series (Table 1). The four exceptions where Kentucky did not suffer greater than national average declines were: average weekly hours in 1957-58; initial UI claims in 1959-60; and both employment and unemployment rate in 1969-71. The period 1969-71 was unusual in that Kentucky experienced employment growth while the nation experienced employment decline. Nevertheless, Kentucky experienced decline in the other three series during that period and the declines were greater than the national average in two series. It is important to note that the results in Table 1 are percentage declines and are not indications of actual levels of economic performance. A large percentage decline does not necessarily indicate a lower level of performance. For example, a state's unemployment rate could increase from 6 to 8 percent (33.3 percent worsening) while the nation's rate increased from 7 to 9 percent (29 percent worsening) showing the state to have suffered a greater percentage worsening but to have had unemployment rates favorable to the national rates.

Kentucky's Five-Year Performance

Performance of the Kentucky economy relative to the national economy over the five-year period from January 1978 through December 1982 is pictured in Figures 1-4. Each plot shows a particular economic indicator with separate lines for Kentucky and the nation. The employment and initial UI claims series are converted to index numbers with the value for the reference month (July 1980) equal to 100; all series are seasonally adjusted; and the two unemployment series are inverted (plotted upside down) so that a worsening is shown as a downward movement.

The employment series (Figure 1) exhibits more clearly than the other series the previously reported tendency for

FIGURE 1
EMPLOYMENT, INDEXED (JULY 1980=100)
SEASONALLY ADJUSTED

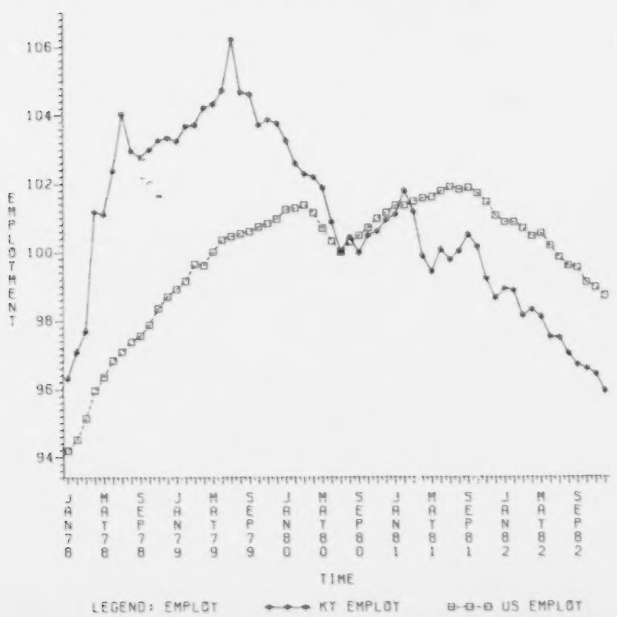
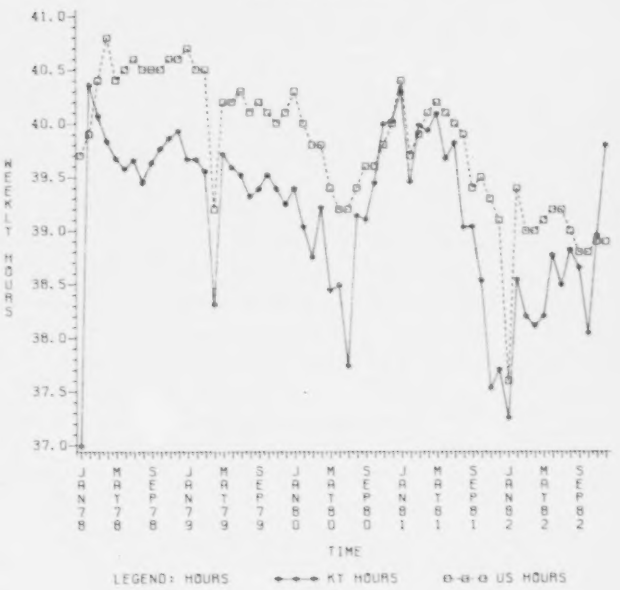


FIGURE 2
AVERAGE WEEKLY HOURS, MANUFACTURING
SEASONALLY ADJUSTED



Kentucky to gain relative to the national average before the late 1970s but to decline thereafter. Note that the state and national values are plotted as equal for July 1980 because of the indexing adjustment and, therefore, no significance can be attached to the Kentucky series being above the national series in the period before July 1980. What is significant is the general direction and degree of movement of the state and national series. Kentucky declined to a greater degree since its peak in July 1979, and that peak occurred two years earlier than the national employment peak.

Average weekly hours in manufacturing (Figure 2) are plotted in hours instead of index numbers and therefore are relevant for comparing both levels and trends between the state and the nation. Kentucky was nearly always below the national average in weekly hours, suggesting that 1,000 average workers in Kentucky manufacturing do not represent as many total hours of work as do 1,000 average workers in manufacturing nationally. Little difference is shown, however, for the state and the nation in the five-year trends for weekly hours. The Kentucky series was below the national series by about the same degree during much of the period, although the Kentucky and national series moved slightly closer together mainly in the period late 1980 to late 1981, indicating improvement. Generally over the five-year period, Kentucky's performance in weekly hours was slightly favorable relative to the nation.

Unemployment rates (Figure 3) also are plotted in original values and allow comparison of both levels and trends between the state and the nation. The level of Kentucky's rate was favorable to the national rate until December 1979 and thereafter was nearly always unfavorable. The degree of worsening over the five-year period was greater for Kentucky than the nation. Overall, Kentucky's performance in unemployment rate was unfavorable because the Kentucky rate changed not

only from below to above the national rate, but worsened to a greater degree during the five-year period.

Initial UI claims (Figure 4) are indexed series and therefore allow comparison only of trends between the state and the nation and not of levels. The apparent favorable level of the Kentucky series relative to the national series during most of the five-year period is significant only to the degree that this relationship changed over the period. The series that generally has the larger degree of downward slope over the entire period depicts the more unfavorable unemployment situation. Compared in this manner, the Kentucky series appears generally to have worsened slightly relative to the national series. But if the five-year period is viewed as two shorter parts, Kentucky's performance was worse than the nation's during 1978-79 but about the same during 1981-82.

FIGURE 4

INITIAL UI CLAIMS, INDEXED (JULY 1980=100)

SEASONALLY ADJUSTED, INVERTED SCALE

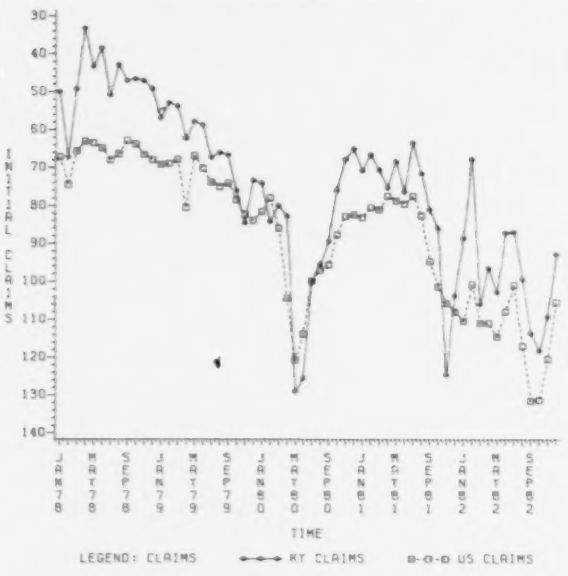
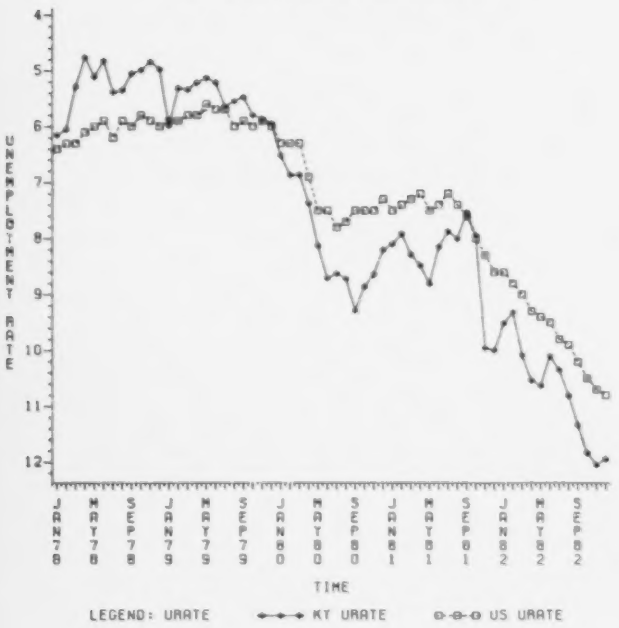


FIGURE 3

UNEMPLOYMENT RATE

SEASONALLY ADJUSTED, INVERTED SCALE



Conclusion

The comparison of seven postwar recessions shows Kentucky almost always to have suffered greater than the nation in terms of percentage decline (worsening) in four work-related economic series for Kentucky and the nation. The same series, compared over the five-year period January 1978 through December 1982, also show Kentucky generally to have declined relative to the nation. The relative decline was most pronounced in the employment and the unemployment rate series. For the initial UI claims series, Kentucky's relative decline was only slight, and the last two years showed improvement compared with the earlier years. Kentucky also improved slightly in relative performance in average weekly hours in manufacturing over the five-year period.

Footnotes

[1]Don M. Soule, "The Changing Kentucky Economy: 1970 to 1980," *Council of Economic Advisors Annual Report–1982*, pp. 37-62 and "Recession Effects on Kentucky Employment: 1980-82," *Kentucky Economy: Review & Perspective*, Vol. 6, No. 4 (December 1982), pp. 3-5, 10-11.

[2]See any issue of *Business Conditions Digest*, a monthly publication of the Bureau of Economic Analysis, U.S. Department of Commerce.

(continued from page 1)

A question remains concerning the structure of the Kentucky economy as expansion occurs at the national level. Some observers suggest, for example, that national structural changes in recent years may be as important as the cyclical change, that manufacturing will not regain its former relative importance, and that the highest growth rates will be in the service sector, communications, and the high-tech industries.

Expansion in Kentucky is expected to lag in some sectors and especially in coal mining and agriculture. Nationally, DRI expects mining (other than oil and gas) to continue to decline through mid-1983 but to expand at an annual rate of about 8 percent in 1984. They expect coal production for export markets to lag. International trade in general is a weak spot for both the nation and the state because sales of goods and services to foreign customers have been hindered by the high price of the dollar in terms of other currencies and the recessions in foreign economies.

The available evidence based on the historical relationship between the Kentucky and the national growth rates suggests slow but continuing growth in the Kentucky economy. This conclusion is supported by Chase Econometrics, Inc., as reported in the *Lexington Herald-Leader* of June 1 and 12, 1983. The growth will be somewhat uneven among state economic sectors in 1983 but will become more pervasive and strong in 1984. In addition, consumers in Kentucky can expect to benefit by the alleviation of serious inflation throughout the nation. DRI projects the Consumer Price Index to rise by about 3.3 percent in 1983, as compared with 6.2 percent in 1982 and 10.3 percent in 1981.

(continued from page 2)

KCEA News & Notes

Those who follow the "selected indicators of economic activity" section of this publication will notice that several new series have been added in this issue to the United States portion of these tables. Both a new and old definition of the Consumer Price Index (CPI) are included, and there is an additional series for the housing component of the CPI. These new estimates are described in an article in the February 1983 issue of the *CPI Detailed Report* (U.S. Department of Labor, Bureau of Labor Statistics). In summary, the change from the old to the new definition of the CPI and the new housing component series reflect a redefinition to include a rental equivalence for home ownership in the CPI for all items, for all urban consumers. This change has been under study for some time and is intended to provide a more accurate measure of the housing component for all urban consumers. The new CPI was first issued for December 1982; the CPI according to the old definition will continue to be issued through data for June 1983, in order to allow a sufficient overlap period.

Estimates of the U.S. labor force have also undergone change. These are described in the February 1983 issue of *Employment and Earnings* (U.S. Department of Labor, Bureau of Labor Statistics). The change essentially results in the estimation of some additional measures of the labor force. Traditionally, persons in the Armed Forces stationed in the U.S. have been excluded from national labor force estimates; these measures have represented the civilian population only. Beginning in January 1983, the resident Armed Forces have been included in the labor force and unemployment rate measures; these new measures are therefore referred to as total labor force and the unemployment rate for the total labor force. It is this latter unemployment rate that will probably be reported in the media most generally in the future.

Estimates of the civilian labor force and the civilian unemployment rate will continue to be available; both sets of series will be maintained in the Kentucky Economic Information System (KEIS). Persons wishing to compare Kentucky labor force and unemployment rates, which are civilian labor force measures, with national data, should be certain to continue to use the national estimates that are based upon the civilian labor force.

* * *

Margaret O. Adams, Manager of the KEIS, recently participated in two conferences dealing with issues related to data and information services. She talked on the subject of "An Economic Information System and Its Use for Planning in State and Local Government" at the Philadelphia meeting of the International Association for Social Science Information Service and Technology, and on "Evaluating the Use of a Public Online Numeric Database System" at the mid-year meeting of the American Society for Information Science that was held in Lexington.

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selected indicators OF ECONOMIC A

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Jan. 1983	Feb. 1983	Mar. 1983	Qtr. I 1983	% Chg. 82-IV 83-I	% Chg. 82-I 83-I
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OLD DEFINITION	292.60	292.80	293.60	293.00	-0.12	3.53
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, NEW DEFINITION	293.10	293.20	293.40	293.23	NA	NA
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, FOOD AND BEVERAGES	280.70	281.60	283.20	281.83	0.92	2.48
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (EXCL RENTAL EQUIV)	316.50	317.20	318.80	317.50	-0.37	3.52
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (INCL RENTAL EQUIV)	317.90	318.50	318.60	318.33	NA	NA
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, APPAREL AND UPKEEP	191.00	192.00	194.50	192.50	-1.20	1.96
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, TRANSPORTATION	293.00	289.90	287.40	290.10	-1.78	0.85
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, MEDICAL	347.80	351.30	352.30	350.47	2.56	10.86
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ENTERTAINMENT	241.50	243.10	244.60	243.07	1.24	5.19
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OTHER	279.90	281.60	281.90	281.13	2.65	12.32
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, SPECIAL INDE : ENERGY	414.50	406.70	399.90	407.03	-3.66	-1.17
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL COMMODITIES	300.00	301.20	300.50	300.57	0.10	0.76
PRODUCER PRICE INDEX, ALL FINISHED GOODS	283.60	283.70	283.40	283.57	-0.44	2.11
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	283.00	283.00	282.50	282.83	-0.78	1.67
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	309.90	310.50	309.20	309.87	-0.03	-0.33
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	289.00	291.30	290.30	290.20	0.48	-0.13
PRODUCER PRICE INDEX, CRUDE MATERIALS	313.70	321.00	322.10	318.93	2.02	-0.33
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	239.60	249.30	249.10	246.00	3.99	-0.11
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT(1967=100)	434.50	416.80	470.70	440.67	-0.13	-0.36
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT(JUNE76=100)	150.20	150.60	150.70	150.50	-0.75	1.69
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	26.09	26.15	26.19	26.14	3.57	20.83
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	59.97	59.99	60.22	60.06	2.09	23.33
AVG PRICE FOR ELECTRICITY, PER 500 KWH	37.18	37.31	37.39	37.29	0.69	2.80
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.19	1.16	1.10	1.15	-6.11	-6.87
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.21	1.17	1.13	1.17	-7.23	-10.42
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.15	1.10	1.06	1.10	-8.26	-11.78
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.23	1.19	1.15	1.19	-7.09	-10.31
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.35	1.32	1.27	1.31	-5.98	-8.28
LABOR FORCE (SEASONALLY ADJUSTED, MILLIONS OF PERSONS)						
LABOR FORCE, TOTAL (INCL RES ARMED FORCES)	112.21	112.22	112.15	112.19	-0.40	1.12
LABOR FORCE, CIVILIAN (EXCL RES ARMED FORCES)	110.55	110.55	110.48	110.53	-0.40	1.13
EMPLOYMENT, RESIDENT ARMED FORCES	1.67	1.66	1.66	1.66	0.04	0.08
EMPLOYMENT, TOTAL CIVILIAN BY RESIDENCE (EXCL ARMED FORCES)	99.10	99.06	99.10	99.09	-0.05	-0.57
EMPLOYMENT, AGRICULTURE	3.41	3.39	3.38	3.39	-1.07	0.66
EMPLOYMENT, NONAGRICULTURAL	95.69	95.67	95.73	95.70	-0.01	-0.62
UNEMPLOYED, CIVILIAN, TOTAL	11.45	11.49	11.38	11.44	-3.38	18.76
UNEMPLOYMENT RATE, TOTAL LABOR FORCE	10.20	10.20	10.10	10.20	-3.00	17.45
UNEMPLOYMENT RATE, CIVILIAN LABOR FORCE	10.40	10.40	10.30	10.35	-2.99	17.43
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG AT ANNUAL RATE)	NA	NA	NA	3170.90	8.32	5.86
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	1486.20	2.46	1.05
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)	2641.70	2644.00	2658.90	2648.20	3.74	5.48
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	145.60	147.60	149.80	147.67	5.53	9.25
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	137.40	138.00	139.70	138.37	2.29	-2.40
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	7.81	8.13	8.30	8.08	1.85	-37.34
PRIVATE HOUSING UNITS AUTH, 16000 PERMIT-ISSUING PLACES (SADJ THOU)	1478.00	1493.00	1459.00	4430.00	112.53	81.11
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	343.35	341.54	342.57	342.57	-0.23	5.00

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ACTIVITY

KENTUCKY DATA

	Jan. 1983	Feb. 1983	Mar. 1983	Qtr. I 1983	% Chg. 82-IV 83-I	% Chg. 82-I 83-I
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1668.10	1659.00	1654.60	1660.57	-2.00	1.32
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1466.00	1448.70	1460.40	1458.37	-3.31	-0.01
EMPLOYMENT, AGRICULTURAL	43.80	46.40	51.00	47.07	-30.95	-1.88
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1422.20	1402.30	1409.40	1411.30	-2.00	0.05
UNEMPLOYMENT RATE	13.10	12.70	11.70	12.18	10.82	10.64
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1150.00	1140.80	1151.60	1147.47	-1.86	-0.70
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	45.90	45.70	45.40	45.67	-0.07	-9.99
EMPLOYMENT, CONTRACT CONSTRUCTION	45.30	43.00	45.90	44.73	-14.36	6.25
EMPLOYMENT, TOTAL MANUFACTURING	240.00	237.50	241.00	239.50	0.63	-5.76
EMPLOYMENT, MANUFACTURING, DURABLE	126.00	125.40	128.40	126.60	2.07	-8.06
EMPLOYMENT, MANUFACTURING, NON-DURABLE	114.00	112.10	112.60	112.90	-0.94	-3.03
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	61.50	61.60	61.50	61.53	-4.60	-6.58
EMPLOYMENT, WHOLESALE & RETAIL TRADE	260.50	256.00	258.50	258.33	-2.86	2.62
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	51.50	51.50	51.20	51.40	-1.47	1.78
EMPLOYMENT, SERVICES (SIC 70-80)	214.30	214.70	216.40	215.13	-0.85	1.80
EMPLOYMENT, CIVILIAN GOVERNMENT	225.90	226.20	226.20	226.10	-0.78	1.06
EMPLOYMENT, STATE & LOCAL GOVERNMENT	185.90	186.00	185.80	185.90	-0.99	0.38
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	39.00	38.90	38.70	38.87	-1.44	2.73
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	38.80	38.30	38.40	38.50	0.26	2.48
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	39.10	39.60	38.90	39.20	-2.33	2.80
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	8.57	8.53	8.64	8.58	1.58	2.88
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	9.34	9.29	9.35	9.33	0.58	3.06
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.70	7.66	7.81	7.72	2.07	3.35
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	334.23	331.82	334.37	333.47	0.64	5.68
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	362.39	355.81	359.04	359.08	0.83	5.61
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	301.07	303.34	303.81	302.74	0.30	6.23
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	7.97	7.75	8.78	24.49	4.07	-18.49
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	2.77	2.73	3.10	8.60	-9.02	-18.63
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	15.05	14.90	14.69	14.88	-1.54	14.11
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	559.86	478.29	453.92	497.36	-5.60	-24.72
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	37.20	32.10	30.90	33.40	-4.21	-34.21
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	15.55	14.04	14.84	44.43	*	-23.79
HOUSING (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	103.70	108.90	178.40	391.00	9.28	31.08
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	267.00	311.00	559.00	1128.00	1.99	74.34
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	11.86	15.26	24.13	51.62	10.07	82.57
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	641.00	595.00	1008.00	2235.00	-1.19	73.26
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	20.15	19.10	33.07	73.09	6.34	71.75
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	40.21	19.50	1.57	61.28	65.13	48.37
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	82.91	62.22	58.05	203.19	*	8.13
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	6.56	6.50	8.45	21.51	*	7.66
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	255.04	156.75	125.37	537.16	*	6.71
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	75.73	48.78	48.36	172.88	*	5.45
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	68.68	53.72	19.59	141.99	*	-1.24
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	9.13	4.93	8.86	22.92	*	29.78
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	29.95	25.17	47.51	102.64	*	-8.45
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.50	6.98	21.28	44.76	*	-0.47
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	9.14	6.71	10.81	26.66	*	17.59

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

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Kentucky's Equal Opportunities Act and the Handicapped Worker

by Joseph Krislov and John Madden*

Kentucky, as most other states, has enacted a statute forbidding discrimination against the handicapped. Enacted in 1976, the Kentucky Equal Opportunities Act forbids discrimination against the physically handicapped person in employment, housing, and loans.[1]

Most state statutes forbidding discrimination against the handicapped, including Kentucky's, differ in several important aspects from the Rehabilitation Act of 1973, the federal government's law barring employment discrimination against the handicapped. In an article comparing state statutes regulating the fair employment of the handicapped, Professor Leap cites four differences from the federal law found in most state statutes: "state agencies are authorized to make decisions enforceable in court, complainants can pursue civil suit, state laws apply to employers generally and not to government contractors of financial recipients only, and affirmative action is usually not required under state law."[2] State statutes, therefore, have a far different role in aiding handicapped employees but are eclipsed by the attention paid to the 1973 federal statute.

Kentucky's statute is fairly typical of state laws forbidding discrimination against handicapped workers. Its coverage includes private employers, state and municipal employers, labor organizations and employment agencies; it excludes employers with fewer than eight employees; non-profit religious, educational and fraternal organizations; and domestic employment. Kentucky's definition of a handicap is limited to physical handicaps; it reads as follows:

> "Physical handicap" means the physical condition of a person whether congenital or acquired which constitutes a substantial disability to the person and is demonstrated by medically accepted clinical or laboratory diagnostic techniques.[3]

Most states cover both physical and mental handicaps and, according to Leap, require an employer to make "reasonable accommodation" to a handicapped person. This he defines as modifying "the working environment or schedules to enable a handicapped employee to work." Kentucky law does not explicitly require an employer to do this although Leap contends that the statutes of ten states (including Kentucky) may "imply an accommodation requirement by employers for employees with major disabilities."[4]

The employment provisions of the Kentucky statute forbidding discrimination of the handicapped are enforced by the Kentucky Department of Labor.[5] It has not adopted a specific form by which a complainant initiates a claim of discrimination and honors as a complaint any incoming letter alleging a violation. In cases where the letters are general in nature, the Department writes the complainant requesting additional information and often requires concrete evidence of a handicap. When the Department has sufficient information to indicate a possible violation, the employer is informed by letter of the complaint and is invited to present his account. There may be additional exchanges between the Department and the complainant or employer. A settlement may be reached during these exchanges, or the Department may dismiss the complaint or award a benefit. Some cases proceed to a formal hearing, and the parties may appeal a decision to the courts.

The Department of Labor has never received a specific appropriation for the statute's administration and has apparently absorbed the workload in its normal operations. Undoubtedly, the combined workload for administering the program requires more than one professional person and some clerical and secretarial services during each year.

Not much is known about the employment of the handicapped; therefore, an empirical investigation of Kentucky's case load may be useful. Several issues will be explored in the following analysis: Who are the complainants? How do they obtain the information to file a protest? Are the typical employers cited for discrimination from small non-union firms in the service industry, as were the typical employers of the seriously handicapped reported in a study in Pittsburgh, by Craft, Benecki, and Shkop?[6] Finally, what success have complainants had in filing their complaints?

Who are the complainants?

The files of all cases closed between the statute's effective date, July 1976, and December 1982 have been made available to the authors. During this period the Kentucky Department of Labor processed 135 cases (see Table 1). An average of 18 complaints have been received each year. While the number each year has varied from 13 to 29 complaints, there has been no pronounced trend over the entire period. However, there has been a decline in the total number of complaints in the 1980s, possibly because of the economic recession. For example, only 30 complaints were filed from January 1981 through December 1982.

While claims of unjust discharges accounted for almost half of the total complaints, these peaked in 1980 at 17 and dropped to 4 and 5, respectively, in 1981 and 1982. Hiring complaints constituted about 40 percent of the Department of Labor's case load, with the bulk concentrated in 1977 and 1978.

Males predominate as complainants; the proportion of female complainants (about 25 percent) is far below their participation in the Kentucky civilian labor force, which was approximately 50 percent in 1981. Of course, the more relevant comparison of handicapped men and women in the labor force cannot be made because the pertinent data are not available.

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TABLE 1

COMPLAINTS OF ALLEGED DISCRIMINATION AGAINST HANDICAPPED PERSONS FILED WITH THE KENTUCKY DEFARTMENT OF LABOR, JULY 1976 THROUGH DECEMBER 1982

Type of Complaint	
Total	135
Discharge	65
Hiring	52
Promotion	1
Other	14
Unknown	3
Sex of Complainant	
Total	135
Male	100
Female	35
Occupation of Complainant	
Total	135
Services	37
Processing	31
Professional/Technical	12
Clerical	12
Machine Trades	12
Farming	11
Structural	10
Bench Work	1
Miscellaneous	5
Unknown	4
Handicap of Complainant	
Total	135
Back	23
Epilepsy	20
Eyesight	18
Hearing	10
Heart	9
Diabetic	8
Loss of Limb(s)	8
All Others	39
Assistance in Filing Complaint	
Total	135
No Assistance	49
Private Attorney	43
Human Rights Commissions	11
Other (union, etc.)	10
Unknown	22

SOURCE: Kentucky Department of Labor.

The occupational data used in this study are not as complete as that in the Craft study, but they indicate that the Kentucky complainants were less severely handicapped than persons in that study. As shown in Table 1, about one-third of the Kentucky complainants were in physically active and demanding work–farming, processing occupations and machine trades–as compared with about one-eighth in the Craft study. Only one-third of the Kentucky complainants were in clerical and service occupations, as compared with over three-fourths of Craft's handicapped personnel.[7]

The alleged handicaps of Kentucky complainants varied widely. Back problems, epilepsy, and eye problems accounted for almost one-half of the recorded handicaps. Diabetes, hearing loss, heart trouble, and loss of limbs collectively accounted for an additional one-fourth of the handicaps.

As shown in Table 1, about half of the Kentucky complainants received some assistance in filing their allegations. Private attorneys predominated as a source of assistance, accounting for more than two-thirds of the assistance. It seems likely that some of this assistance may have been offered as a free service. Human Rights Commissions throughout the state investigated complaints they received and referred them to the Department of Labor. Surprisingly, however, about 40 percent of the complainants apparently received no assistance whatsoever and simply wrote a letter to the Department of Labor which, in turn, contacted the complainant or employer for additional information.

Who are the employers?

Determining all the salient characteristics of the employers against whom complaints were filed has not been possible. The typical letter received by the Department of Labor merely identifies the name and address of the alleged offender. Of course, the name and address are often quite revealing; additional information is also possible by checking various directories.

It seems clear, however, that the Kentucky employers against whom complaints are lodged are not the typical employer of the handicapped found in the Craft study; that is, a small, non-union company providing services. According to the data in Table 2, almost half of the Kentucky employers were unionized, far in excess of Craft's findings in Pittsburgh. Moreover, the union status of about one-fourth of the Kentucky employers was unknown; probably many of these employers were not unionized, but some (especially those in manufacturing) may have been unionized.

There is another striking difference between Kentucky employers and Craft's employers. Only one out of eight employers in Craft's sample was a manufacturer, as compared with over 40 percent of our cases. Moreover, over 20 percent of the employers were in mining, construction, and transportation–industries not even included in Craft's list. Several Kentucky employers were in some of the traditional service sectors but very few were in the restaurant business, hotel industry, laundry industry, retail sales or wholesale distribution.

It has not been possible to ascertain the size of Kentucky employers. Efforts at determining the location has been more successful. Most of the complaints originate in the urban areas, with almost one-third of the complaints from Kentucky's largest city, Louisville. Other urban areas, including Lexington and northern Kentucky, account for about half of the cases. Because employers in the urban areas would tend to have more employees than those in the rural areas, it can be assumed that the employers in the Kentucky case load would tend to be larger than the typical employer of the handicapped identified by Craft.

TABLE 2

EMPLOYERS ALLEGED TO HAVE DISCRIMINATED AGAINST THE HANDICAPPED, JULY 1976 THROUGH DECEMBER 1982

Union Status	
Total	135
Union	57
Non-Union	39
Unknown	39
Type of Employer	
Total	135
Manufacturing	57
Mining/Construction	18
Transportation	11
Social Services	10
Personal Services	9
Restaurant/Food Services	7
Health Services	6
Education	5
Retail Sales	3
Wholesale Trade	2
Hotel Services	2
Laundry	1
Miscellaneous	4
Location of Employer	
Total	135
Louisville	42
Other Cities	65
Rural	24
Unknown	4

SOURCE: Kentucky Department of Labor.

How successful are the complainants?

Only one-fifth of the complainants were upheld by the Department of Labor (see Table 3). The typical remedy for a discharge complaint required that the company rehire the individual when the next vacancy occurred. Back pay was not awarded in any case. Similarly, the typical remedy in a hiring controversy where the complainant was upheld was simply that the company should hire the complainant when the next vacancy occurred.[9]

About one-third of the cases were dismissed because they were inappropriately filed or because the complainant failed to meet the Department's requirements. In an additional one-third, the Department investigated the complaint and found that the company was not guilty.

The Department of Labor should receive high praise for its prompt handling of the cases. According to Leap, "filing complaints and conducting investigations, conciliations and formal hearings may take nearly a year and a half" in many states.[10] The duration of each Kentucky complaint from receipt by the Department to its formal closing was ascertained; the Department of Labor disposed of two-thirds of its cases within six months.

Conclusion

Relatively few handicapped persons have made use of Kentucky's statute. Moreover, Kentucky complainants do not generally resemble the severely handicapped individual; they are active and are quite widely dispersed among all occupations. They appear to be relatively sophisticated, obtaining assistance from several sources–private attorneys, Human Rights Commissions and unions –before contacting the Department of Labor.

TABLE 3

ADMINISTRATIVE ACTION BY THE KENTUCKY DEPARTMENT OF LABOR REGARDING COMPLAINTS OF DISCRIMINATION AGAINST HANDICAPPED PERSONS, 1976-82

Administrative Action	
Total	135
Closed: employer found not guilty	39
Closed: complainant failed to proceed within time limits set by statute	33
Closed: complainant upheld or settlement reached between employee and employer	31
Closed: Department of Labor had no jurisdiction (or employment not covered)	21
Closed: referred elsewhere	8
Open or disposition unknown	3
Duration of Filing to Action	
Total	135
0 - 6 months	93
6 months - 1 year	17
1 year - 1½ years	8
1½ years - 2 years	6
Open or unknown	11

SOURCE: Kentucky Department of Labor.

Similarly, the employers identified in this analysis appear to be more typical of all employers than the handicapped person's typical employer, at least as described by Craft. A substantial number of employees were unionized, and a significant number were in manufacturing, mining, construction, and transportation. These patterns belie the pattern Craft associated with the handicapped worker. Moreover, some of the largest employers in the state were included in the sample.

As would be expected, a fair number of complainants failed to proceed with their complaints. It is possible but not likely that some settlement was reached with the employer after the filing of the complaint. Approximately half of the complaints were adjudicated; employers were found not guilty in more than half of these adjudicated disputes. The remedy awarded in the minority of cases in which the complainant was sustained was quite limited, and it is not known whether all of these complainants were actually employed or re-employed.

Notes

[1] 1976 Equal Opportunities Act, KRS 207.130 to 207.230.

[2] Terry L. Leap, "State Regulation and Fair Employment of the

Handicapped," *Employee Relations Law Journal*, Vol. 5, No. 3 (Winter 1979-80), pp. 382-383.

[3]KRS 207.130 (2).

[4]Leap, pp. 383-387.

[5]No enforcement mechanism was established for housing and loan discrimination; it is believed that an alleged grievant would have to file court action for redress.

[6]J. H. Craft, T. J. Benecki and Y. M. Shkop, "Who Hires the Seriously Handicapped?" *Industrial Relations*, Vol. 19, No. 1 (Winter 1980), p. 94.

[7]Ibid., p. 96.

[8]Ibid., pp. 95-96.

[9]For an analysis of arbitration cases and awards dealing with the employment rights of the physically handicapped, see Benjamin W. Wolkinson, "Arbitration and the Employment Rights of the Physically Disadvantaged," *The Arbitration Journal*, Vol. 36, No. 1 (March 1981), pp. 23-30.

[10]Leap, p. 389.

Editorial note: The information presented in the following two short pieces analyzes county-level income data for the period 1977-81. A brief explanation may be helpful in understanding why this particular time period is chosen now for analysis, given that the data are being published in June 1983, a full 18 months after 1981.

County-level personal income estimates are scheduled for release each April by the source agency, the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. The most current estimates are for annual data for the year that ends 16 months earlier. It takes BEA this length of time to prepare estimates for all U.S. counties and, especially, to guarantee comparability in these estimates among counties. In addition, the schedule for periodic data revision causes a particular year's estimates to be revised each year following the first release, for a period of five years. For example, estimates for 1977 county-level personal income were first published in 1979 and have been revised each year thereafter to reflect revisions in national and state income estimates. The period chosen for analysis here is the period for the newly revised county-level personal income estimates.

It is further relevant to indicate that not only do the income estimates undergo significant revisions over the years, but the population estimates are likewise revised. Thus, the two parts from which per capita personal income is estimated—total resident personal income and population—can be expected to be revised over the coming years. These revisions may alter the data reported in the following articles and may also result in greater clarity about the economic developments that have been taking place. This process will take several years, however.

Kentucky County-Level Real Per Capita Personal Income 1977-1981

The county-level personal income data depicted on pages 15 and 16 of this issue are in per capita amounts (total county personal income of residents divided by county population) and therefore allow easy comparison among counties with large and small populations. But the percentage increases during the period under review (1977-81) are exaggerated by the high inflation rates during those years. To provide a more clear picture of income changes, the current-dollar income data have been divided by a price index to remove the effects of price increases. The price index used–the implicit price deflator for personal consumption expenditures in the GNP–increased by 39.6 percent between 1977 and 1981. (The Consumer Price Index increased by 50 percent.) When adjusted for inflation, the income data show levels and percent changes in "real per capita personal income" and reflect purchasing power levels and changes as well as provide a more direct measure regarding economic growth.

It is interesting to note the following:

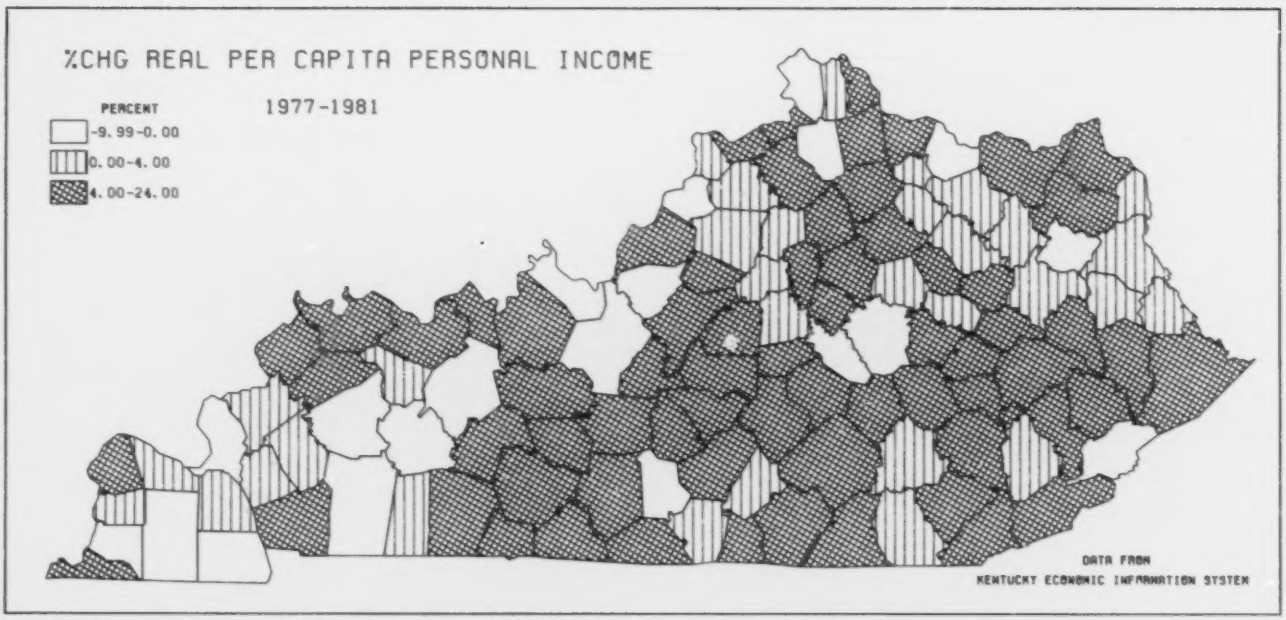
- four Kentucky counties (Bourbon, Fayette, Jefferson, Woodford) were above the national average in levels of per capita personal income in 1981;
- Kentucky's average rate of growth in current dollar per capita personal income was above the national inflation rate;
- Kentucky's rate of 3.98 percent was less than the national rate of 7.62 percent, for real per capita personal income growth between 1977 and 1981.

The map shows real per capita personal income for Kentucky's 120 counties according to three groups:

- counties whose rates of current-dollar per capita personal income growth were less than the national inflation rate and who, therefore, suffered reductions in real income or purchasing power;
- counties whose real per capita personal income grew but at less than the Kentucky state average rate; and
- counties whose real per capita personal income grew at above the state average rate.

These counties and their growth rates in real per capita personal income are identified in Table 1.

Is there an explanation of why real per capita personal income fell in 20 of Kentucky's counties? Incomes were obviously depressed by the two national recessions that began in January 1980 and July 1981. But recession effects are common in varying degrees to the nation, the state, and the counties and therefore do not necessarily explain why particular counties suffered more than others. Also, an examination of employment and population changes shows no consistent patterns. The group of 20 counties with reduced real per capita personal income includes a variety of combinations of increases and decreases in employment and population. Especially complicating the picture are differences between county employment data according to place of *residence* and alternatively according to place of *work*. If workers reside in county A but work and shop at businesses located in county B, for example, closing of a factory in county A has its main effect on the place of work employment data for county A and on place of residence employment data for county B. Another complicating factor is that a county's population increase may be caused by persons moving into the county and becoming workers, because of that county's favorable job situation, or, in contrast, population increase may be caused by previous residents becoming unemployed elsewhere and returning to their former home counties but remaining unemployed because of that county's unfavorable job situation. Possibly the answer to this puzzle lies in case studies of particular counties that are identified in the statis-



tics as having slow, moderate, or fast income growth. Examination of particular business closings in particular counties, and also of daily mobility patterns for workers and shoppers, might suggest a general answer.

TABLE 1

1977-81 CHANGES IN REAL PER CAPITA PERSONAL INCOME, POPULATION AND EMPLOYMENT, SELECTED KENTUCKY COUNTIES

County	Real Per Capita Personal Income 1977 (1972$)	Real Per Capita Personal Income 1981 (1972$)	% Change, 1977-81	Rank in State 1977	Rank in State 1981	Percent Changes, 1977 to 1981 Population	Percent Changes, 1977 to 1981 Resident Employment
Boone	$4664.03	$4484.32	-3.85%	13	18	13.04%	25.93%
Bullitt	3523.33	3515.17	-0.23	60	69	13.33	29.11
Calloway	3857.86	3750.64	-2.78	47	55	5.23	-13.50
Christian	4010.05	3932.13	-1.94	36	44	-0.15	9.84
Elliott	2585.79	2439.59	-5.65	105	115	12.50	-33.66
Garrard	3737.26	3714.65	-0.60	51	58	9.52	-4.67
Grant	3903.09	3821.08	-2.10	45	52	11.57	16.82
Graves	4348.17	4297.68	-1.16	17	27	0.91	-9.60
Hardin	3872.94	3719.28	-3.97	46	57	2.31	9.60
Hickman	3997.85	3630.85	-9.18	38	65	1.64	-11.00
Hopkins	5198.13	5162.98	-0.68	2	8	2.20	-9.69
Letcher	3352.48	3172.24	-5.38	72	85	1.32	-18.79
Livingston	4124.91	3947.04	-4.31	24	43	1.11	-20.02
Madison	3464.47	3413.37	-1.47	66	75	7.47	-10.14
Mason	4099.07	4095.12	-0.10	25	36	1.13	-6.11
Meade	2814.07	2740.36	-2.62	92	103	10.95	20.17
Metcalfe	2628.14	2571.72	-2.15	99	110	9.09	-2.91
Muhlenberg	4636.04	4363.50	-5.88	15	24	2.22	2.42
Ohio	4094.76	3913.11	-4.44	26	45	-0.93	-11.60
Oldham	4071.79	4004.11	-1.66	28	41	30.77	35.50
Kentucky	4161.52	4326.99	+3.98			2.40	3.18

Data sources: Per capita personal income was estimated by the Bureau of Economic Analysis (BEA), U.S. Department of Commerce, April 1983; population changes are based upon the population estimates supplied to BEA by the U.S. Bureau of the Census and are comparable to the *preliminary* and *unofficial* Kentucky county-level estimates of July 1981 population available from the Urban Studies Center, University of Louisville; employment by place of residence is estimated by the Bureau for Manpower Services, Kentucky Cabinet for Human Resources.

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Kentucky County-Level Per Capita Personal Income 1977-1981

The following table gives the current dollar values for Kentucky county-level per capita personal income in 1977 and 1981, and shows the percentage change in these values over this period. Comparable information is shown on the map on page 16, where the percentage change in per capita personal income for each county is shaded according to the quintile appropriate to it. The source agency for these data is the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. In making its estimates of per capita personal income, BEA relies upon an estimate of population provided to them by the Bureau of the Census, U.S. Department of Commerce. It should be noted that the 1981 estimates of per capita personal income listed below, as well as all county-level 1981 data series recently released by BEA (see News & Notes, p. 2), are considered *preliminary* estimates.

The table below was prepared using KEIS program ADD3. For further information, please contact the KEIS Manager (606-257-7675).

	1977	1981	PERCENT CHANGE 1977-81
ADAIR	3657.00	5745.00	57.10
ALLEN	4769.00	7187.00	50.70
ANDERSON	6000.00	8467.00	41.12
BALLARD	5625.00	8234.00	46.38
BARREN	5115.00	7586.00	48.31
BATH	4492.00	6334.00	41.01
BELL	4709.00	7274.00	54.47
BOONE	6497.00	8722.00	34.25
BOURBON	7159.00	12056.00	68.40
BOYD	7135.00	10248.00	43.63
BOYLE	5702.00	8736.00	53.21
BRACKEN	4548.00	6846.00	50.53
BREATHITT	3367.00	5794.00	72.14
BRECKENRIDGE	4386.00	6603.00	50.55
BULLITT	4908.00	6837.00	39.30
BUTLER	4030.00	6172.00	53.15
CALDWELL	5890.00	8520.00	44.65
CALLOWAY	5374.00	7295.00	35.75
CAMPBELL	6584.00	9743.00	47.98
CARLISLE	5276.00	7489.00	41.94
CARROLL	5565.00	8391.00	50.78
CARTER	3630.00	5330.00	46.83
CASEY	3121.00	4839.00	55.05
CHRISTIAN	5586.00	7648.00	36.91
CLARK	6404.00	8977.00	40.18
CLAY	3622.00	6050.00	67.03
CLINTON	3034.00	4448.00	46.61
CRITTENDEN	5537.00	7876.00	42.24
CUMBERLAND	3780.00	5411.00	43.15
DAVIESS	6613.00	9713.00	46.88
EDMONSON	3345.00	5140.00	53.66
ELLIOTT	3602.00	4745.00	31.73
ESTILL	4456.00	6689.00	50.11
FAYETTE	6998.00	10677.00	52.57
FLEMING	4273.00	6110.00	42.99
FLOYD	4495.00	6603.00	46.90
FRANKLIN	7117.00	10287.00	44.54
FULTON	5798.00	8545.00	47.38
GALLATIN	4350.00	6495.00	49.31
GARRARD	5206.00	7225.00	38.78
GRANT	5437.00	7432.00	36.69
GRAVES	6057.00	8359.00	38.01
GRAYSON	4211.00	6622.00	57.25
GREEN	4468.00	6743.00	50.92
GREENUP	5442.00	7979.00	46.62
HANCOCK	5590.00	8689.00	55.44
HARDIN	5395.00	7234.00	34.09
HARLAN	5034.00	7492.00	48.83
HARRISON	5634.00	8321.00	47.69
HART	4148.00	6037.00	45.54
HENDERSON	6904.00	10069.00	45.84
HENRY	5514.00	7891.00	43.11
HICKMAN	5569.00	7062.00	26.81
HOPKINS	7241.00	10042.00	38.68
JACKSON	3130.00	4560.00	45.69
JEFFERSON	7331.00	10760.00	46.77
JESSAMINE	5007.00	7404.00	47.87
JOHNSON	4901.00	7040.00	43.64
KENTON	6583.00	9420.00	43.10
KNOTT	3770.00	6051.00	60.50
KNOX	3628.00	5298.00	46.03
LARUE	4842.00	7160.00	47.87
LAUREL	4460.00	6289.00	41.01
LAWRENCE	4302.00	6145.00	42.84
LEE	3355.00	5151.00	53.53
LESLIE	3640.00	5260.00	44.51
LETCHER	4670.00	6170.00	32.12
LEWIS	3454.00	5212.00	50.90
LINCOLN	3943.00	6055.00	53.56
LIVINGSTON	5746.00	7677.00	33.61
LOGAN	5497.00	8262.00	50.30
LYON	4810.00	6805.00	41.48
MCCRACKEN	6686.00	9479.00	41.77
MCCREARY	2783.00	4540.00	62.84
MCLEAN	5659.00	7943.00	40.36
MADISON	4826.00	6639.00	37.57
MAGOFFIN	3428.00	5670.00	65.40
MARION	3798.00	5730.00	50.87
MARSHALL	5660.00	8029.00	41.86
MARTIN	5113.00	7362.00	43.99
MASON	5710.00	7965.00	39.49
MEADE	3920.00	5330.00	35.97
MENIFEE	3097.00	4504.00	45.43
MERCER	5574.00	7967.00	42.93
METCALFE	3661.00	5002.00	36.63
MONROE	3764.00	5746.00	52.66
MONTGOMERY	5120.00	7496.00	46.41
MORGAN	3484.00	4965.00	42.51
MUHLENBERG	6458.00	8487.00	31.42
NELSON	5165.00	7505.00	45.30
NICHOLAS	4760.00	6700.00	40.76
OHIO	5704.00	7611.00	33.43
OLDHAM	5672.00	7788.00	37.31
OWEN	4376.00	6553.00	49.75
OWSLEY	2858.00	4694.00	64.24
PENDLETON	4858.00	7170.00	47.59
PERRY	4956.00	7491.00	51.15
PIKE	5223.00	7699.00	47.41
POWELL	3953.00	5643.00	42.75
PULASKI	4756.00	7069.00	48.63
ROBERTSON	4090.00	5745.00	40.46
ROCKCASTLE	3195.00	4948.00	54.87
ROWAN	3908.00	5542.00	41.81
RUSSELL	3832.00	5367.00	40.06
SCOTT	5844.00	8512.00	45.65
SHELBY	5989.00	8519.00	42.24
SIMPSON	5856.00	9213.00	57.33
SPENCER	5257.00	7817.00	48.70
TAYLOR	4840.00	7221.00	49.19
TODD	4949.00	7121.00	43.89
TRIGG	5598.00	8172.00	45.98
TRIMBLE	4313.00	6183.00	43.36
UNION	5591.00	9366.00	67.52
WARREN	5483.00	8141.00	48.48
WASHINGTON	4392.00	6774.00	54.23
WAYNE	3340.00	5131.00	53.62
WEBSTER	6496.00	9685.00	49.09
WHITLEY	4865.00	6863.00	41.07
WOLFE	3331.00	4970.00	49.20
WOODFORD	7240.00	11465.00	58.36
PURCHASE ADD NO.1	5979.58	8452.52	41.36
PENNYRILE ADD NO.2	6142.75	8353.18	35.98
GREEN RIVER ADD NO.3	6457.16	9399.80	45.57
BARREN RIVER ADD NO.4	5159.47	7424.39	43.90
LINCOLN TRAIL ADD NO.5	4996.16	6807.68	36.26
KIPDACKY COUNTIES) ADD NO.6	7241.05	10262.41	41.73
NORTHERN KENTUCKY ADD NO.7	6455.77	9074.78	40.57
BUFFALO TRACE ADD NO.8	4704.12	6550.69	39.25
GATEWAY ADD NO.9	4401.16	6065.79	35.35
EKVCO ADD NO.10	5764.18	8041.40	39.51
BIG SANDY ADD NO.11	5151.78	7140.57	38.60
KENTUCKY RIVER ADD NO.12	4338.66	6150.77	41.77
CUMBERLAND VALLY ADD NO.13	4479.48	6404.01	42.96
LAKE CUMBERLAND ADD NO.14	4111.04	5969.99	45.22
BLUEGRASS ADD NO.15	6454.48	9194.67	42.45
KENTUCKY	5797.00	8416.00	45.18

SOURCE: BUREAU OF ECON ANALYSIS, U.S. DEPT COMMERCE; KY ECON INFO SYS

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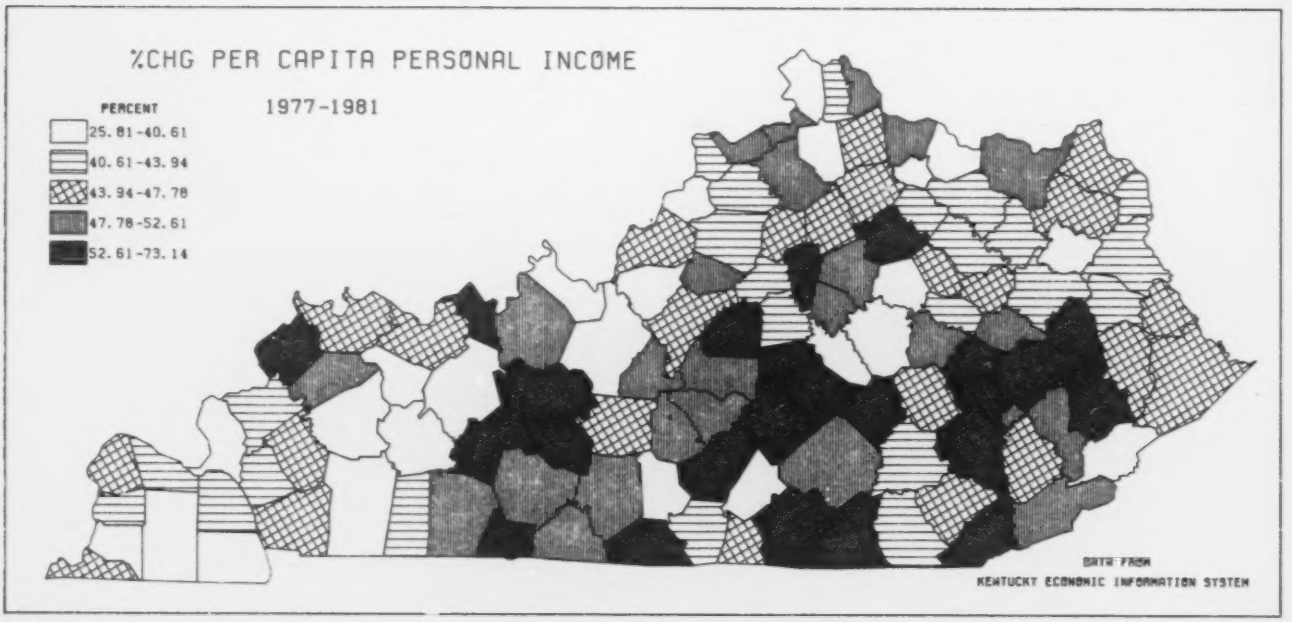

The calculations of percentage change in per capita personal income were done by software of the Kentucky Economic Information System (KEIS). The data from which these calculations were made originate with the Bureau of Economic Analysis, U.S. Department of Commerce. They are stored in the CBANK of the KEIS.

The map was produced on the ZETA plotter at the University of Kentucky Computer Center using the Kentucky Analytical Mapping System (KYAMS). For further information about an interface between the KEIS and KYAMS, contact Roy Sigafus (606-257-7675).

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